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Address

VASOMOTOR AND TROPHIC NEUROSES

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In taking the chair I must first thank you for the honor you have done me in selecting me for this office. It is needless to say that I appreciate it and that it gives me much pleasure to preside at this meeting. I shall depend on your consideration and assistance in guiding the discussions and proceedings.

It has always been customary for the chairman to present at the opening of the meeting some general topic which has for him some special interest. In looking over the field of neurology many subjects suggested themselves. There is one, however, which is of much importance, but which seems in recent years to have been rather neglected or overlooked, for there is little in the literature bearing on it. Hence I have chosen it. It is the subject of vasomotor and trophic neuroses, and I have thought that a brief presentation of our present knowledge of the vasomotor system and its nervous supply might enlist your interest.

In the term "vasomotor and trophic neuroses" it is intended to include a number of forms of disturbance of circulation and nutrition which are caused by disorders of the nervous system. Such disturbances may occur in any part of the body. They are not to be regarded as distinct diseases, but rather as symptoms of lesions in the peripheral or central nervous system. They may present themselves in various forms. Vasomotor disturbances manifest themselves (1) by a dilatation of the vessels, producing redness, heat, and rapid metabolism in the part affected; or (2) by a contraction of the vessels, causing pallor, coldness, and malnutrition; or (3) by alternation of these conditions and consequent temporary disturbance of function. Trophic disturbances may occur in consequence of such increase or decrease of blood supply, or independently of any vascular change, causing (1) an abnormal production of tissue in an organ, or (2) a decrease in the size and number of its constituent cells, or (3) an actual degeneration of the elements which make it up, after which their place may be taken by another kind of tissue. Under all these circumstances the function of the part affected will be disturbed, and symptoms will be produced which will vary with the tissue or organ involved. Before proceeding to a detailed consideration of these neuroses it is necessary to review the physiology of the vasomotor and trophic systems, in order to make clear the manner in which they perform their functions. And inasmuch as the pathology of these affections is best understood by comparison with experimental lesions made by physiologists in investigating their function, it will be treated together with their physiology.

PHYSIOLOGY

LOCAL VASCULAR TONE

Since changes in the force and frequency of the heart's action, and variations in the total amount of blood in the body, affect the body as a whole, the state of circulation in any one organ or part must be dependent on the degree of contraction or dilatation of its own vessels. This is known as the local vascular tone. It is under the control of a system of nerve ganglia with their subservient fibers which are found in the middle coat of all arterioles. The energy expended by these ganglia is manifested by a constant moderate contraction of the circular muscular coat of the artery—a contraction which is as constantly opposed by the dilating force of the blood pressure within the vessel. An exact equipoise between these two forces never occurs, since each varies constantly, but in a state of health one never becomes permanently excessive. Considerable variations, however, in the local vascular tone are frequently observed. Thus each organ is influenced to a certain degree by every other, since an increase of blood in one part must involve a decrease in all other parts, the total amount of blood in the vessels being constant. Alteration in the heart's action is felt more quickly in some organs than in others, and thus the general blood pressure by its variations may cause secondarily a disturbance of local vascular tone. The variations now under consideration, however, are not of this kind. They are such as are produced by influences acting directly on the ganglia in the vessel walls.

Local irritation is such an influence, and it may excite the ganglia to increased activity, so producing a contraction of the vessel and consequent pallor; or it may suspend the action of the ganglia, so producing a dilatation of the vessel and consequent flushing.

Another influence is irritation acting from a distance and conveyed to the local ganglia by nerve fibers. These nerve fibers can be distinguished from all others by their structure, being non-medullated, and by the fact that they have an indirect course, passing from the central nervous system to the sympathetic ganglia, and from these to the local ganglia in the vessels. The impulses sent along these nerves may affect the local ganglia in one of two ways, either causing contraction by exciting the ganglia, or dilatation by inhibiting the action of the ganglia. The result produced has determined the names given to the impulse, to the fiber transmitting it, and to the center whence the impulse proceeds, and hence vasoconstrictors and vasodilators are distinguished.

The history of the development of the sympathetic nervous system as well as its gross anatomy, affords distinct proof that it is not an independent system, as Bichat supposed, but is closely connected on its physiologic action with the spinal cord and brain. Impulses which reach the sympathetic ganglia from a distance along the vasoconstrictor or vasodilator fibers originate in the central nervous system. The nervous mechanism which controls the local vascular tone is, therefore, a complex one, consisting not only of the set of local ganglia connected with larger sympathetic ganglia, but also of centers in the spinal cord connected with the higher centers in the brain. The brain centers in turn are complex, consisting of an automatic mechanism in the medulla regulating the action of all the subordinate parts below it, and of a series of cortical centers whose function it is to stimulate or inhibit the medullary mechanism. It therefore becomes evident that local vascular tone may be modified by local causes acting on the ganglia in the vessels.—e. g., cold or heat; by changes in the sympathetic ganglia—e. g., the hyperemia of the face in lesions of cervical ganglia; by reflex action through the spinal cord—e. g., pallor produced by pain; by reflex action through the medulla oblongata—e. g., glycosuria following sciatica; or by conscious or unconscious impulses coming from the cortex—e. g., the blush of shame, the vasomotor paralysis of hemiplegia.

VASOCONSTRICTORS

Such a mechanism, however complex in structure, would be easily comprehended if the constant manifestation of energy in the maintenance of arterial tone had its only source in the action of the local ganglia in the vessels, and was affected only occasionally by impulses from a distance, as has been thus far supposed. This, however, is not the case, as has been demonstrated by a series of experiments beginning with the brilliant researches of Claude Bernard. The classical experiments of the French physiologist were made on the sympathetic cord in the neck of a rabbit. Division of this was found to produce a dilatation of the vessels of the ear. Irritation of the peripheral end of the divided cord produced a contraction of the vessels. Division of the spinal nerves connected with the cervical sympathetic and of their anterior roots, or irritation of the cut ends, produced effects similar in character to those caused by division or irritation of the cervical sympathetic. Destruction of the spinal cord in the lower cervical region, or division of the cord at any higher level up to the medulla, was followed by dilatation of the vessels. If the segment of the divided cord just below the section was irritated the vessels contracted. Destruction of the medulla at the calamus scriptorius and above it for three centimeters produced a general dilatation of all the vessels in the body, but division above this level had no effect. The initial congestion produced by these various experiments was accompanied by a rise of temperature in the part. It was followed after a time by a partial recovery of vascular tone, which was more complete the farther the division from the local ganglia. These facts warrant the conclusion that the energy expended by the local ganglia in holding the vessels in a state of constant moderate contraction is derived from the central nervous system, primarily from the automatic center in the medulla, which in turn is reinforced by each of the secondary centers in the spinal cord and sympathetic ganglia; and also that while the medullary centers control the entire body, the cord and sympathetic centers control only those parts with which they are especially related. In order, therefore, to the maintenance of normal vascular tone the local ganglia must be intact, and they must be in connection with the sympathetic ganglia; these must be active, and must be connected with the spinal cord; the cord must be normal, and its tracts from the medulla must be capable of conduction; the medullary center must be active, and not hindered or spurred by cortical impulses of a conscious or unconscious nature. Any injury to one or more of these parts will produce a vascular dilatation by interfering with the transmission of vasoconstrictor impulses from within outward, and any irritation of one or more of these parts may cause a contraction of the vessels by increasing the normal stimulus sent to the local ganglia by the vasoconstrictors. An example of such an irritation is the enormous rise of arterial tension seen in an increasing cerebral hemorrhage; or in the intracranial pressure due to abscess or tumor.

VASODILATORS

The action thus far considered has been wholly of a vasoconstrictor kind, and the dilatation which has been mentioned has been due to cessation of the constrictor energy normally passing outward. This may be termed a passive dilatation. It is the kind produced by division of any one of the sympathetic ganglia or cords. But further experiments have shown that another kind of dilatation may be produced, traceable not to a mere cessation of constrictor impulses, but to an impulse of a positive kind sent to the local ganglia and resulting in a sudden suspension of their activity. Such an impulse is really an inhibitory impulse arresting the action of the ganglia in spite of the continued stimulus sent to them from the central nervous system. Its result is a dilatation of the arteries, produced by the blood pressure within them, which may be termed an active dilatation. That vasodilators act by inhibiting local ganglia which cause contraction is now accepted, especially since it is found that such inhibitory activity is constantly displayed by other parts of the nervous system, and is competent to explain the facts. The active dilatation produced by the inhibition of the action of the local ganglia is, therefore, to be clearly distinguished from the passive dilatation caused by the cessation of normal tonic impulses sent to them from higher centers. The former is a positive active vasodilator phenomenon. The latter is a negative paralytic vasoconstrictor phenomenon. The former is more effective, the dilatation being greater in degree and more permanent than the latter, and resembles exactly the dilatation produced experimentally by exhaustion of the activity of the local ganglia by overstimulation of the constrictors. An example of this is the low vascular tone and complete relaxation of the large vessels seen in shock or in abdominal injuries.

An important point of contrast which has been established between vasoconstrictor and vasodilator impulses is that while the former are constant the latter are intermittent. Hence they can not be regarded as opponents of one another. In a normal quiescent state vasoconstrictor energy is always being supplied to counteract the continued intravascular pressure ever renewed with the cardiac systole. The vasodilators are inactive. In an organ thrown into functional activity an increased flow of blood at once takes place, proportionate to the work being done by the organ. Such a functional hyperemia might be produced either by a cessation of constrictor impulses or by an inhibition of their effects. It is by

the latter means and through the vasodilators that it is produced, and it is probably the chief function of the vasodilator nerves to regulate the blood supply in accordance with the need of a part. For this reason these nerves have been supposed to pass with the motor nerves to the muscles. As few organs exist without a possible use, it is probable that vasodilators pass to all parts of the body, as Vulpian asserts, though they have not been demonstrated in every organ or every part.

Like the vasoconstrictors, the vasodilators can be traced to the spinal cord, and their centers there are governed by a general center in the medulla, which in turn may be affected by impulses from the cortex. A destructive lesion in any part of the vasodilator system does not produce as marked effects as one involving the vasoconstrictor system, since the symptoms of such a lesion will appear only when the vasodilators are called into play. When the vasodilator nerve to the submaxillary gland is cut, no change is observed unless its function should be excited by some sapid substance put in the mouth, when the gland is no longer found to flush with blood as in the normal state. It is by means of the vasodilators that erectile organs become engorged with blood. Eckhard has shown the nervi erigentes of the penis to be vasodilator nerves. If they are destroyed, the organs will not respond to the wonted stimulus—a symptom which, however, would be noticed only at intervals. An irritative lesion of the vasodilator system may produce permanent congestion of an organ or part, but this seems to be rather more rare than a congestion from paralysis of the constrictors. It is seen in injuries of the peripheral nerves. An example of the inhibition exerted by the cortical centers over this part of the vasodilator system is the state of impotence of psychical origin.

ORIGIN OF THE VASOMOTOR NERVES

The exact course of the vasoconstrictor and vasodilator nerves has been traced from various parts into the central nervous system by the careful experiments of Dastre and Morat and by Gaskell. It is now established that they exist as separate nerves, although they often run together, and that they usually enter the spinal cord at different levels.

If the various spinal nerves be cut singly from above downward, and the effects noted, and if the peripheral ends be irritated and the effects noted, and if with proper care the results be analyzed and compared, it will be found that the anatomic connections of the segments of the spinal cord with the sympathetic ganglia, which are so evident at each level, are not the ones by which physiologic impulses pass out at that level. The vasoconstrictors of the head, which can be traced to the superior cervical ganglion, do not come from the upper cervical region of the cord, as might be supposed from the connections of that ganglion, but from the first three dorsal nerves. They reach the ganglion through the sympathetic cord in the neck, having traversed the inferior cervical ganglion on the way. The vasoconstrictors of the arm, which can be traced to the inferior cervical and upper thoracic ganglia and to the thoracic sympathetic cord, are derived from the seven upper dorsal nerves. It is true that division of the roots of the brachial plexus causes a slight dilatation of the vessels of the arm, but this is so much increased when the dorsal nerve roots are divided that it is evident that it is through them that the constrictor fibers chiefly pass. The vasoconstrictors of the leg, which can be traced into the second and third lumbar ganglia and lumbar sympathetic cord, are derived from the five lower dorsal and first lumbar nerves, and only join the crural and sciatic nerves after passing through the abdominal sympathetic. The thoracic viscera are probably supplied partly through the branches of the inferior cervical and thoracic ganglia, and partly through the pneumogastric, the latter statement being disputed by Gaskell. The abdominal viscera are supplied partly through the splanchnic nerves, which are made up of fibers issuing from the cord in the fifth to the twelfth dorsal nerves inclusive, and partly through the pneumogastric. Thus the dorsal region of the cord is the origin of the majority of vasoconstrictor fibers in the body.

The origin of the vasodilators is also to be traced to the dorsal cord. The vasodilators of the buccofacial region comes from the second to the fifth dorsal nerves, whence they pass to the first thoracic ganglion, and thence by the ansa of Vieussens into the cervical sympathetic cord. Those of the eye, head, and ear come from the safe ganglion, but have their spinal origin in the eighth cervical and first dorsal nerves. Those of the arm are traced into the upper thoracic sympathetic cord, which they reach from the five upper dorsal and last cervical nerves. Those of the leg are traced to the first and second lumbar ganglia and the lumbar sympathetic cord, which they reach from all the dorsal nerves from the sixth downward. Gaskell holds, however, that the vasodilators of the extremities pass out of the cord in the cervical and lumbar plexuses and accompany the cerebrospinal nerves. The vasodilators of the thorax and abdomen are supposed to pass in the pulmonary plexus and splanchnic nerves, but this is not yet fully determined.

Vasomotor nerves can be distinguished from motor and sensory nerves in the spinal nerve roots by the smallness of their caliber. The vasoconstrictors issue from the spinal cord in both anterior and posterior nerve roots as medullated fibers, and pass to the sympathetic ganglia lying on the vertebræ (proximal or lateral ganglia); there they lose their medullary sheath, and either end in cells whence new fibers issue, or more probably pass directly onward as non-medullated fibers, having a connection with the unipolar cells of the ganglia only for purposes of nutrition. The number of fibers issuing from any one ganglion is much greater than the number entering it from the cord; hence it is supposed that each medullated fiber splits up into a group of non-medullated fibers; which is possible, as each axis-cylinder is made up of numerous fibrils. Leaving these ganglia, the nerves pass either to the second series of ganglia (distal or collateral ganglia), whence they issue in plexuses to enter the vessels, or to the vessels directly, where they divide in plexuses. It is in the meshes of the plexus that the local ganglia of the vessel walls are found. The vasodilators are thought to differ from the vasoconstrictors in passing directly to the distal ganglia as medullated fibers, not being connected in any way with the proximal ganglia.

VASOMOTOR REFLEXES

Thus far reference has been made only to fibers whose direction of transmission is centrifugal, and whose exit from the spinal cord is by the anterior nerve roots. There are other fibers, however, through which centripetal impulses pass, and these enter the spinal cord with the posterior nerve roots. The function of these fibers is to transmit sensory impulses inward to reflex centers, and thus set in action motor mechanisms of a vasoconstrictor or dilator kind whose effects are produced at the

periphery. There are, therefore, vasomotor reflexes, as well as skin and tendon reflexes, whose centers are in the spinal cord. These reflex acts may be excited by impulses reaching the center not only through the vasomotor centripetal nerves, but also through the sensory nerves of the cerebrospinal system. The effect of changes of temperature on the circulation in the skin (if the right hand be plunged in cold water there is a fall of temperature in the left hand), the effect of pain on the color of the face and the size of the pupil, the red cheek on the affected side in pneumonia, the occurrence of glycosuria during sciatica—all these are instances of such reflex acts. Many vasomotor affections are produced by irritation causing reflex effects at a distance from the seat of irritation—a fact always to be kept in mind. The utility of counter-irritation to the surface in diseases of the internal organs is explained by supposing that vascular changes are produced in those organs through reflex mechanisms set in action by the local irritation. While some of these reflexes may have their central mechanism in the local ganglia it is probable that the majority are to be traced to the spinal cord. It is believed that the sympathetic ganglia are not the seat of reflex centers.

Since the vasomotor nerves are connected almost exclusively with the dorsal portion of the spinal cord, it is very natural to conclude that the vasomotor reflex centers are situated in this region; and the hypothesis has been advanced by Jacobovics, and strongly urged by Gaskell, that the cells of the vesicular columns of Clarke, which are peculiar to this region, are the seat of these reflex mechanisms. This hypothesis gains some support from the pathology of syringomyelia. In this disease the gray matter surrounding the central canal and the vesicular columns is destroyed. The characteristic symptoms are vasomotor and trophic disturbances, consisting of changes in the vascular tone, changes of local temperature, and various eruptions, in some cases going on to ulceration in the skin and mucous membranes. It is, however, undecided whether the vasomotor centers of the cord are limited to the columns of Clarke, or are situated in the gray matter surrounding the central canal, since both these parts are destroyed in this disease. That they are not located in the anterior or posterior gray cornua is determined by the fact that diseases limited exclusively to these areas do not cause vasomotor disturbances. The situation of the various reflex centers for the various parts of the body is at different levels of the cord, as has been determined by the experiments already cited to establish the level of origin of the vasomotor nerves. The exact location of the vasoconstrictor and vasodilator reflex centers for definite parts is yet to be ascertained.

VASOMOTOR TRACTS

These reflex centers are connected with the medulla by tracts which lie in the lateral columns of the spinal cord, although it is not determined in which part of these columns. It is not possible as yet to separate the constrictors from the dilators in this tract, nor to determine whether it transmits impulses in both directions or only from above downward. Nor is the course of associating fibers between reflex centers at different levels known. In cases of transverse myelitis the control of the medulla is removed from the vascular centers below the lesion, and the lack of vascular tone seen in the paralyzed limbs, together with the susceptibility to local irritation, is the result of this division of the vasomotor tracts.

MEDULLARY CENTERS

It has been stated already that a general vasomotor center with both constrictor and dilator powers is situated in the medulla. This lies in two divisions on each side of the middle line, in or just beneath the floor of the fourth ventricle, from the calamus scriptorius up to the level of the sixth nerve nucleus. Each division governs the vascular tone of its own side of the body,[1] and lesions in its region in man produced unilateral vasomotor symptoms.[2] This center can be excited to reflex action by strong irritation locally or through the blood, in which case a general constriction or dilatation of the vessels of the entire body will ensue. It seems probable, however, that the general center in the medulla is made up of a number of special centers, each of which governs a definite set of organs. The vascular tone of the thoracic and abdominal viscera is certainly regulated by a series of such centers. Brown-Séquard and Schiff have produced hemorrhages in the lungs, pleura, stomach, intestines, and kidneys at different times by destructive lesions of the medulla, and the well-known experiments of Bernard in which by puncture of the medulla local hyperemia of the liver or kidneys was caused, producing glycosuria or polyuria, confirm this view. Lesions of these parts in man produce similar effects. Charcot has shown that in cerebral hemorrhage ecchymoses may be found in the stomach, pleura, and endocardium, and that pneumonia is especially frequent on the paralyzed side. De Jonge[3] has been able to collect thirteen cases of diabetes mellitus in which a lesion of the medulla (hemorrhage or tumor) was found after death; and Flatten[3] has proved the existence of similar lesions in diabetes insipidus. The medulla contains a special center for the vasomotor nerves of the abdomen, which are in the domain of the splanchnic nerves. This center is excited reflexly by impulses reaching it through the depressor nerve of Cyon from the heart; so that when that organ is overburdened it may be relieved by a fall of arterial pressure produced by dilatation of the abdominal vessels. Whether the connection of the medulla with the centers in the semilunar ganglion which preside directly over these vessels is made by way of the spinal cord or by way of the pneumogastric nerve is still undetermined, though the researches of Gaskell favor the former view. Gastric and intestinal disturbances are certainly produced by nervous lesions in the medulla, but whether they are due to vascular changes is uncertain. The vomiting of mucus and blood, and the large watery evacuations which accompany mental shock or anxiety, as well as the polyuria associated with mental effort, have been ascribed to irritation of local centers in the medulla governing the gastrointestinal and urinary organs by impulses received from the cortex above. I have a patient, a professor in a college, who always has a profuse diarrhea on the way to his lectures, but never has it on a day when he is free from duty. The spleen is under the control of vasomotor centers, since section of the splenic branches of the semilunar ganglia will produce a great enlargement of the organ, and irritation of the cut end of these branches will produce contraction.[4] The medulla also contains a vasodilator center for the erectile tissues of the genital organs, irritation of which by mental action or local disease causes impulses to pass to the nervi erigentes by way of the spinal cord, result-

1. Owsjanikow: Arb. a. d. Physiol. Inst. zu Leipsic, 1871.
2. Starr, M. A.: Sensory Tract in Central Nervous System, Jour. Nerv. and Ment. Dis., July, 1884, p. 396.
3. Arch. f. Psychiat., xiii, 231.
4. Tarchanoff: Arch. f. d. ges. Physiol. (Pflüger's), viii, 97. Ross: Diseases of the Nervous System, i, 225.

ing in a flow of blood to the parts. The priapism seen in myelitis is due to irritation of the tracts from this center to the vasomotor mechanism of the genital organs. Although a center has been thought to exist controlling the circulation in the lungs, whose paralysis has been supposed to explain the occurrence of sudden pulmonary edema without other known cause, no definite facts regarding it are known. That the action of the heart is under the control of the medulla is a fact too well known to require more than a mention. The physiology of the nervous control of the heart can not be discussed here.

While these medullary centers are certainly influenced by impulses reaching them from the cerebral hemispheres, as is evident from the vasomotor symptoms produced by mental action—e. g., pallor from fright, blushing, etc.—it is impossible to state in what portion of the hemispheres in man the higher vasomotor centers lie. Eulenburg and Landois locate them in the motor area in animals.[5] They are certainly beyond control of the will, and are wholly reflex in their action, a purely mental act in this case being the excitant of a purely physical result. It is rather singular that in the many observations regarding cortical lesions of the brain in recent years no light has been thrown on this subject.

PATHOGENESIS

From this review of the physiology of the vasomotor system it becomes evident that disturbances of vascular tone may be produced by many different causes acting on many various parts. They may be due to local affections of the part in which the symptoms are present, as in the case of erythema after burns or frost-bite, or congestion of any organ after injury. They may be due to affections of the vasomotor nerves passing to the part affected, as in the case of vascular changes due to peripheral nerve lesions. The peculiar blueness in the fingers after an ulnar or median nerve injury will occur to any one as a good example. They may be due to affections of the sympathetic ganglia connected with the part affected, as in the case of migraine, sudden flushing of one ear, certain cases of polyuria, and hyperthyroidism. They may be due to lesions in the spinal cord affecting the vasomotor centers or compressing the nerve roots on their way to and from the sympathetic ganglia, as is the case in the various forms of myelitis and in Raynaud's disease or symmetrical gangrene, and in meningitis, tumors of the cord, or Pott's disease. They may also be caused by such conditions in the cord as cut off the vasomotor centers from the medullary centers, such as transverse myelitis from compression or traumatism. They may be due to lesions of the medulla oblongata, as is seen in some cases of polyuria and glycosuria, and in cases of universal erythema following acute fevers. They may be due to diseases of the cerebral hemispheres, as is evident from the vasomotor symptoms occurring in hemiplegia and hysteria. Finally, they may be of a reflex origin, dependent on some obscure source of irritation in a part quite distinct from the region in which the symptoms appear.

SYMPTOMS

A vasomotor affection may manifest itself either by a spasm or a paralysis of the vessels. In angiospasm the part affected becomes pale, and irritation no longer causes a vasomotor reflex. It looks shrunken, and if the skin over it is loose it may be thrown into folds or shrivelled, presenting the appearance seen in the hands after long immersion in hot water. The lack of blood in the parts arrests the processes of metabolism which are normally constant, and if the condition continues this may result in such a disturbance of nutrition that ulceration, or even gangrene, may ensue. The local anemia, combined with the cessation of metabolism, produces a fall of temperature in the affected part, which is then more easily affected by the temperature of the air than in a normal state, so that exposure to cold is very liable to cause freezing. These conditions necessarily produce an impairment of function, so that if the affection is located in the extremities, as the fingers, they are soon rendered useless. The term "digiti mortui" has been applied to this state. In the surface of the body angiospasm causes cutis anserina, pallor, numbness, tingling, slight anesthesia, and analgesia. If it occurs in a limb, the finer motions are imperfectly performed, and in time the nutrition of the muscles may be so impaired as to produce atrophy and paresis. Such arterial spasm in the deeper arteries of the leg gives rise to intermittent claudication, in which for a few moments the individual is quite helpless from loss of power in the leg. It may even lead to gangrene. Nothnagel has recorded[6] five cases of sciatica in which the pain produced a reflex spasm of the vessels of the leg, which, persisting, resulted in partial paralysis, atrophy, lowering of temperature, pallor, and sensory disturbances. Ross mentions the sudden appearance of circumscribed patches on the hands and forearms of washerwomen, in which there is a pallor, coldness, and partial anesthesia. These may be limited to the distribution of a single nerve, and may be accompanied by trophic affections.

I believe that such a spasm of the arteries of the brain affords an adequate explanation of those sudden attacks of aphasia, or monoplegia, or hemiplegia, or numbness, or hemianopsia which occur but which soon pass away, leaving no permanent disability.

Spasm of the veins may occur as well as of the arteries,[7] or independently of them. In the latter case the blood will not pass out of the capillaries. The part will then be blue, swollen, edematous, and painful; the temperature will be lowered by increased radiation of heat, and all the sensations and functions be impaired in greater or less degree. If this continues, nutrition may suffer, and in the end gangrene develop, which will take its course and lead to the throwing off of the part. Grainger Stewart has described such a condition occurring in both hands and feet.[8] It may be likened to a severe form of Raynaud's disease.

Angioparalysis is less frequent than angiospasm, and may be due either to paralysis of the vasoconstrictors or to excitement of the vasodilators. It shows itself by a bright-red or mottled appearance of the skin, and increase of local temperature, and more rapid processes of nutrition, together with an increase of secretion if the part is a gland or a mucous membrane, and an increase of sweat if it is the skin. In the latter case an increased sensitiveness to change of temperature, a subjective sensation of heat, and hyperesthesia and hyperalgesia may occur. The hyperesthesia on the paralyzed side which is present in hemiparaplegia spinalis is ascribed to the vasomotor paralysis. But these symptoms soon give place to others. The dilatation of the vessels, which at first caused an increased flow of blood to the part, produces a slowing of the blood current in the part, just as

5. Virchow's Arch. f. path. Anat., lxviii, 245.

6. Nothnagel: Arch. f. Psychiat., v, 86.
7. Weiss: Symmetrische Gangrän, Wiener Klinik, 1882.
8. Stewart, Grainger: An Introduction to the Study of Nervous Diseases, p. 138.

a river runs less rapidly where it becomes wider. The slowing of the current in the skin allows a more complete cooling of the part as the radiation of heat and the evaporation of moisture are increased, and the slowness of the renewal of blood impairs the processes of nutrition, so that to the first stage of redness, heat, and increased metabolism there ensues a stage of blueness, cold, and defective nutrition, and the function of the part may be impaired. In this stage it usually presents a mottled appearance, and may be slightly swollen and edematous, and the continued increase of perspiration gives it a clammy coldness to the touch. In all of these conditions severe pain, sometimes of a burning character, is a very distressing symptom (causalgia). These conditions are seen in peripheral nerve-lesions, and give rise to the appearances which have been so admirably described by Weir Mitchell.[9]

A peculiar combination of symptoms may be mentioned here, to which Weir Mitchell has given the name of erythromelalgia.[10] This symptom begins with tenderness and pain in the soles of the feet, which are soon followed by a marked distention of the capillary vessels. The congestion is attended by a sensation of burning pain similar to that produced by a blister. The surface is at first of a dull dusky-red color; later it appears purple. The redness is not uniformly distributed over the sole, but occurs in patches of irregular shape, being especially frequent over prominent parts exposed to pressure and friction, and the attacks seem to be brought on by long standing or walking. At first there is a rise of temperature in the affected surface, the arteries pulsate visibly, the veins are swollen, and there may be some edema. Later, the foot is cold and pale. Sensations of touch and temperature are normal, but the part is so extremely tender that walking is impossible. There is no paralysis. One or both feet may be affected, but the patches of redness are rarely symmetrical. The hands are occasionally affected. The condition may occur in paroxysms or may remain for some time. It resists all known methods of treatment, although applications of cold relieve the burning pain to some extent and the tenderness enforces rest.

With angioparalysis may be classed the *taches cérébrales* of Trousseau, no longer considered diagnostic of meningitis, but denoting a weakened condition of vasoconstrictor action in the local ganglia of the vessel-wall, which may occur on local irritation of the skin in any severe disease affecting the nutrition of the general nervous system.

Actual rupture of the capillaries in the course of vasomotor diseases is rarely observed, although the stigmata appearing in hysterical and cataleptic patients may be ascribed to this cause. In this connection tabetic ecchymoses may be mentioned, which appear suddenly without local injury, and resemble an ordinary bruise, running a similar course. They occur only in the course of locomotor ataxia.[11]

In addition to these forms of vasomotor affections, there is a condition of instability of vascular tone which manifests itself by sudden transient changes in the circulation of various organs. This is a functional affection, usually due to malnutrition. It is seen in many cases of neurasthenia and hysteria, and manifests itself by sudden flushes or pallor, alternations of heat and cold, local sweating, attacks of mental confusion, and inability to use any organ continuously from disturbance of the power of the vasodilators to maintain a condition of functional hyperemia.[12] Little is actually known about the causes of this state of the vascular system, although much has been written about it.

Many functional derangements of the internal viscera have been ascribed to such vasomotor instability with more or less probability,[13] but hypothesis of this kind, however plausible, is evidently beyond confirmation. It is especially in affections of this kind that causes of reflex irritation are to be carefully sought. Cutaneous angioneuroses, such as have just been described, may affect any part of the body. They usually appear suddenly, producing much discomfort and an impairment of function in the part if it is an extremity. They disappear as rapidly as they come. The duration of such attacks varies from a few minutes to several days. They are very liable to recur. If it is the vessels under the control of the cervical sympathetic which are affected, the symptoms will be those of migraine or of lesion of the ganglia. If it is the vessels in the extremities which are involved, the condition of digiti mortui or erythromelalgia or symmetrical gangrene may be produced.

A singular epidemic occurred in France in 1828 and 1830, which was termed acrodynia. Many persons were suddenly seized with vomiting and purging, and soon after the onset the extremities became red or mottled in blotches, swollen and edematous, and hot, painful, and tender. The attacks lasted from a few days to two months, and during this time the skin became thick and hard, the muscles weak and subject to spasms, and the general health was impaired. Relapses occurred in many cases, but all the patients finally recovered, and hence the exact nature of the disease was not ascertained.

All are familiar with the phenomena of angioneurotic edema, in which sudden swelling of a limb or a part of the surface of the body may occur, leading to great impairment of function and to much discomfort. When this invades the neck and larynx the disease may even prove fatal. This is an example of a vasomotor neurosis with trophic symptoms.

COURSE OF THE DISEASE

In any case of vasomotor neurosis the course of the disease and its termination will depend chiefly on its cause. If the cause is some permanent lesion of the nervous system, the condition will remain, and in this case the termination will depend on the severity of the symptoms. Angiospasm may be so severe as to lead to gangrene and the separation of the part affected, or may be so slight as to cause only subjective discomfort and a little pallor. Angioparalysis may lead to an extreme degree of congestion, which is attended by heat and pain at first, later by paresthesia and coolness, with increased liability on the part to be affected by changes in the surrounding air. This stage is succeeded by one of less marked dilatation of the vessels and a spontaneous partial recovery, although the more moderate symptoms may continue indefinitely and seriously impair the function of the part. If the cause is a temporary derangement of function in the vascular mechanism, is reflex irritation which can be removed, or is a curable organic disease, the symptoms will subside rapidly or gradually and perfect recovery may follow. If the condition is one of irritability in the vasomotor centers, producing alternations of flushing or pallor, such as is observed in

9. Mitchell, Weir: Injuries of Nerves.
10. Mitchell, Weir: Am. Jour. Med. Sc., July, 1878.
11. Straus: Arch. de Neurol., i, 536.
12. Angel: Arch. f. Psychiat., xv, 618.
13. Fox: The Influence of the Sympathetic System in Disease, London, 1885.

nervous exhaustion, it may recur irregularly for a considerable length of time until the causative condition can be removed.

I fear that I have delayed you already too long in the presentation of this rather complex and intricate subject. If I have been able to put before you a summary of the many interesting conditions which we are constantly meeting in practice and affording you an explanation of symptoms not wholly understood, I shall have accomplished the task I set out to perform.

5 West Fifty-fourth Street.

ABSTRACT OF DISCUSSION

SIR JAMES GRANT, Ottawa, Canada: I came here from Canada especially because I knew that Dr. Starr was to deliver an address at the opening of this Section of the American Medical Association. About twenty years ago I had the pleasure of addressing this Association at Newport, when no less a man than the great Bancroft, the historian, one of the finest intellects probably that this country ever produced, occupied the place of chairman. In looking around this great meeting to-day I was shocked to realize that many of my dear old friends whom I met on that former occasion had passed away. But in doing so they left a magnificent record scientifically in this great republic.

I have listened with pride and pleasure to the admirable address delivered by Dr. Starr on the nervous system. It is *multum in parvo*. Nothing seems to have escaped him. We know perfectly well that of all the structures of the human body there is none more complex in its organization, more difficult to define, more irregular as regards the distribution of nerve force, and sometimes nothing more latent as regards diseases, that affect it than the nervous system; but suffice it to say that the advances in the study of nervous and mental diseases made within a short time are so characteristic and so definite, and show such satisfactory progress in our profession, that I am sure that with the many masters here on the nervous system to-day it is unnecessary for me to occupy the time or the attention of the audience. But there is one fact that struck me to-day, and that is the reference to congestive action in centers of the nervous system. Coming as I do from a great manufacturing center, where thousands of people are constantly employed in the great lumber trade, I have time and again been amazed at the recoveries of some of these men under injuries to the brain and through the skull. I have seen large portions of the skull and of the brain tissue removed, and still the individual make a splendid recovery, contrary in every way to my experience; and in the investigation of these cases I found that the men who made those recoveries were men who had little or no education, men who perhaps could not write their own names. We know perfectly well that there is nothing that increases the vascularity, that excites the nerve centers to a greater degree, than excessive education. In fact, to-day many persons get their brains so crowded and crammed with information that the practical utility of the brain is in a large measure lessened, just the same as the usefulness in a field that has been overcropt year after year. What we want now is practical information; and let me say this, that the ordinary individual who has no education whatever will stand three or four times the hammering of the skull and taking away of the brain tissue than the ordinary individual who is highly educated will. I merely wish to mention this fact to show what education does as regards storing up latent energy in nerve tissue, and how it guides and directs, in large measure, the development and the progress of disease.

Tonsillectomy.—There is less danger of injuring the deep tonsillar vessels if the pressure is made from inside with the instrument than when it is exerted on the outside. Hard tonsils with much connective tissue are better removed by a cold snare than by a sharp instrument, as less bleeding occurs. An hypertrophied lingual tonsil sometimes causes a heavy, sore feeling at the base of the tongue.—*American Journal of Surgery.*

Original Articles

THE CLINICAL STUDY OF A SERIES OF CASES OF INSANITY *

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Last summer we were enabled to make a systematic study of a series of patients admitted to the hospital from the middle of June to the middle of August. This study was undertaken without preconceived ideas, and included the cases in the regular order of their admission to the hospital. From this number sixty were selected in which we were able to get a fairly full history of the antecedents of the illness, and the conditions connected with its incidence.

After the patients came into the hospital they were placed under practically experimental conditions, as all of our patients are; but in addition we made a systematic study of the blood and stomach contents, as well as the urine, with the object of noting the relation between digestion and metabolism, and the mental condition, not from the laboratory point of view, but from the standpoint of the clinical bearing of this relation. That is, of what nature, and how extensive were these metabolic disturbances, as manifested in the perverted functioning of the vegetative organs, and what was the effect of this perverted functioning in determining the incidence of the mental aberration?

The data included are the family and personal history of the patient, the record of the onset of the mental disturbance, and the clinical study of the individual during the first month of his residence in the hospital. The effort has been made to put this study graphically into a table, including in each case an abstract of the findings, except the urinalysis; which is included under the general head of renal inadequacy. This inadequacy is determined by diminution in the amount of urine, and failure to excrete nitrogenous waste.

In the 60 cases included, 33 patients were men and 27 were women. Sixteen of the patients were under twenty-five years of age; 40 between twenty-five and fifty-five years; while 4 were fifty-five years old and over.

In 38 cases nutrition was seriously impaired; 35 patients suffered from insomnia; 49 were constipated; while in 49 cases there was some degree of renal inadequacy. Nine patients had some acute form of body disease; while 47 had some form and degree of chronic degenerative disease in the vegetative organs.

Of the acute disease conditions, there was 1 case of intestinal infection, 3 of urethritis in women, and 1 of gonorrhea in a man. There was one case of persistent headache, 1 case of typhoid fever, and 2 cases of pulmonary tuberculosis. Of the 27 women, 16 suffered from the effects of puerperal trauma, 11 had leucorrhea, 3 hemorrhoids, 2 chronic pelvic infection, 1 varicose veins, and 2 goiter.

The blood was examined at intervals of a week for the first four weeks of the residence of the patient, with the following general results: In 2 cases there was

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

* Owing to lack of space, the very extensive table which forms part of this article has been omitted from THE JOURNAL. It appears in the author's reprints, however, a copy of which will be sent by the author or by THE JOURNAL on receipt of a two cent stamp, provided the request is received within six months.

erythrocythemia, in 1 case hemoglobinemia, in 10 cases relative lymphocytosis, in 5 cases absolute lymphocytosis, and in 1 case lymphocythemia. There was 1 case of eosinophilia, 1 case of leucopenia (a case of typhoid fever), 12 cases of absolute leucocytosis, and 6 cases of relative leucocytosis. We could not determine that there was any significance in the blood findings, except in the cases of acute body disease, and we were astonished to find anemia so infrequently. The nearest approach to a relational condition was in the cases in which vitality was markedly impaired. In these cases there was either a relative or an absolute lymphocytosis.

The stomach was emptied in each case the morning after admission, with apomorphin, and at intervals of a week for four weeks. A balanced ration was given instead of the ordinary test meal, so that we might know the functional capacity of the stomach under ordinary conditions.

In thirty-nine cases pepsin was either much diminished or absent, and lab was absent in eight cases. In forty-nine cases there was hypochlorhydria, and in two cases hyperchlorhydria. The acids of fermentation were present in forty-nine cases, usually lactic and butyric acids. Bacteria were present in forty-one cases, commonly the Oppler-Boas bacillus, and next in frequency the *Bacillus lactis aerogenes*. Mucus was increased in ten cases; while in one case all of the normal constituents of the gastric juice were absent, and in one case of delirium, at first, mucopurulent material only was obtained.

It is of interest to note that in the case in which there was complete absence of the constituents of the gastric juice, there was intense depression which had existed for some time, and in all of the cases in which pepsin and lab were absent there was marked depression, with self-depreciation or persecutory ideas. As the stimulus to gastric secretion is primarily emotional, it is not surprising that this function should be so considerably influenced by the mental condition of the individual; nor that the belief in poisoning or obstruction to the entrance of food into the stomach should so commonly be associated with uncomfortable gastric sensations, a foully coated tongue, chronic nasopharyngeal inflammation, and bad teeth. Further proof of the relation between the mental and physical condition was found in the effect of gastric lavage and the necessary medication in dissipating the ideas of poisoning and also relieving the intensity of the depression.

The urinalysis is not included in the table, except as to the statement of the result, and the condition of the kidneys. In all of the cases in which the urine was reduced below 1,000 c.c., the nitrogen output below 15 gm., and chlorids below 5 gm., we believe renal inadequacy to be present. We have not found albumin and casts to have much significance with relation to the functional capacity of the kidneys, except in so far as the presence of albumin might interfere with the osmosis of organic salts, and thus intensify the chronic intoxication. We have noted, also, that there is a definite coincidence between the return of the kidney function to normal and improvement in the mental condition.

We are debarred from information as to neurologic conditions obtained through the cooperation of the patient, so that we are able to note only what information may be obtained by direct observation. It so happened that there was no gross nervous disease present in any of the cases included in this study. There was tremor present in the tongue, facial muscles, or limbs in forty-six cases; the pupils were dilated in forty-eight cases. These, as well as the other phenomena observed, apparently had no special significance, but were dependent on the general physical condition of the patient, and disappeared as he improved. The superficial reflexes were diminished or absent in thirty-one cases, and exaggerated in three cases. The knee-jerk was exaggerated in twenty-five cases, and diminished or absent in fourteen cases. It was of interest to note, as is the rule in our experience, the association of diminished or absent superficial reflexes with exaggerated knee-jerk, but we have not noted the converse of this association.

Some years ago I made the following statement with regard to heredity with relation to insanity, and as further experience has confirmed the conclusions therein expressed, I can not do better than to quote from it here, with the necessary additions to make them applicable to this paper:

> The definition of heredity with relation to insanity is as much involved by difference of opinion as to its significance as is the definition of insanity. The common conception of this relation is that the insanity is not the result of hereditary conditions, unless the immediate progenitors or collateral relatives of the individual have been insane. The equation is not so simple, however.

It is a reasonable assumption that there is no family whose history, if carefully scrutinized for three generations, will not disclose considerable evidence of mental aberration!

> Besides, the parents of the insane individual may be sound mentally, but the victims of some constitutional disease that will affect adversely the development of the child. In consonance with the results of recent discoveries in biologic chemistry, we may believe that there is a limitation of the potentiality in the different parts of the organism in each individual, and that this limitation applies to the capacity of the organism as a whole to meet the conditions in the environment.
>
> We know from observation, both clinical and general, that this potentiality is seldom equal in all parts of the organism. So that, while the individual may have been able to meet the conditions in the environment in which he was born and grew up, he would not be equally capable to meet the conditions in an environment differing materially from his own. If this is true of the apparently normal individual, how much more is it true of the individual who for any reason is not uniformly developed, or whose capacity is limited.

The history of insanity among the immigrant population of the northwest is an excellent illustration of this contention. In recent years there has been a great deal of assisted emigration from northern, eastern and southern Europe, and a large number of these immigrants become insane within a comparatively short time after settling in this country. These people, never very vigorous mentally, have, while living under a paternal government, in the care of a parental church, and with a fixed social status, lived their lives without evidence of mental aberration sufficient to attract attention. In this country, however, under the stimulus of social and industrial competition, with political license and absence of parental religious restraint, they break down mentally, because of their inherent incapacity, and rapidly become demented. Again, when, as is now so frequently done, these people are returned to their native country by the government, they take up their lives where they left off in coming to America, and get along as they did before.

> There is further illustration in the phenomena of senility; the irregular manner in which its processes are usually manifested, and the frequency of its premature appearance, both

physical and mental. It follows, then, that this insanity or limitation of potentiality, which may manifest itself in instability, incapacity, or defect in any part of the organism, must have its origin in an inherent incompleteness that handicaps the individual from the beginning of his existence. Following the law of degenerative processes, those parts of the organism that are latest in the order of development and most complicated in their structure and function will be the first to be limited in their capacity and to show the evidence of lessened potentiality. For this reason, no matter what the nature of the incapacity in the parents, in the offspring the potentiality of the nervous system is, other things being equal, most likely to be limited. The recognition of hereditary influence has, therefore, to take into consideration the transmutation of form in the transmission from one generation to the other of those recessive conditions that are commonly called diathetic. That is, any condition that produces somatic degenerative changes in the organism of the parent may be manifested in brain degeneration or mental aberration in the offspring. Thus the children of the syphilitic, alcoholic, gouty or tuberculous, may be, and commonly are, the victims of degenerative disease in the nervous system and insanity. So that while, as generally understood, the children of the victims of these diathetic conditions who become insane, do not directly inherit the tendency, practically they do, by the transmutation of the diathetic condition between parent and child.

In twenty-four cases no history could be obtained of constitutional conditions present in parents or near relatives, but this does not prove that, in these cases, there was no constitutional disease! To quote Maudsley: "A man may be ever so conscientious and upright, but when it comes to his family history he will lie with perfect equanimity." Besides, a great many of our patients know nothing about their families, nor would they recognize the evidence of instability or defect as such. In 9 cases there was a history of alcoholism, in 8 cases, a history of cancer, in 13 cases, of insanity, in 14 cases, of phthisis, in 2 cases, of rheumatism; while in 8 cases one or both parents were neurotic. In some of the cases there was a history of both insanity and phthisis, and in 1 case insanity, phthisis, and cancer. In 1 case a member of the family in the same generation had cancer; in 10 cases a brother or sister was insane; while in 5 cases the concurrent disease was phthisis. It is worthy of note that there was one more case with an heredity of phthisis than there was with an heredity of insanity; also, that in the majority of those cases in which a brother or sister was insane, the family history was that of tuberculosis rather than of insanity. In 1895 I read a paper before the American Neurological Association in which this relation of insanity with phthisis was treated of in detail. The conclusions then expressed have been amply confirmed by the observations of the past fourteen years.

In 43 cases there was auditory hallucination, in 18 cases visual hallucination. In 10 cases there was gustatory, in 2 olfactory, and in 6 cases tactile hallucination. In 8 of the cases either delirium or dementia prevented us from determining the form of sense perversion. In 1 case there was both visual and tactual hallucination, in 12 cases visual and auditory, in 1 case visual and gustatory, in 1 case visual, gustatory and tactual, and in 1 case visual, auditory, and gustatory hallucination. In 1 case there was auditory, gustatory, and olfactory, in 6 cases auditory and gustatory, and in 2 cases auditory and tactual hallucination.

In 51 cases there was present the belief in persecution, and in 7 cases the ideas were self-depreciatory. In 11 cases religiosity was dominant; in 9 cases there were grandiose ideas; while in 8 cases the dominant condition was confusion. In some of the cases persecutory and depreciatory ideas alternated, and in others persecutory and grandiose ideas; their presence was determined by what the patient saw and heard, and their definition depended on the extent of the confusion present, or the degree of dementia. Religiosity was practically always present to some extent, and in two of the cases religiosity was the only apparent manifestation of aberration. Forty-three of the patients were depressed, and in forty-two cases dementia was sufficiently advanced to destroy the capacity for attention, direction, and control. In all of the cases confusion was so marked as to make the mental processes incoherent. In 5 cases agitation was marked, in 25 cases furtive suspicion was dominant; 6 patients were more or less disturbed, 3 were stupid, 5 were exalted, and 2 delirious. Four patients were imbecile. In the history of the onset of mental aberration in all the cases included in this study, it was evident that confusion was the first manifestation, accompanied by suspicion, dread, and fear. In those cases in which there was marked mental defect or previous loss of mental capacity, there was the furtive suspicion of the animal, with explosive outbreaks of violence, or the disposition toward purposeless flight and seclusion. In our experience these manifestations divide the insane into two general classes. Every insane person either resents actively the supposed attitude of his friends or the community toward him, or else he tries to escape from his untoward surroundings, or to hide away from apprehended danger. Among those of the same intellectual status as our patients, this attitude is natural and universal. It requires a considerable amount of intelligence and degree of cultivation to overcome the inherent suspicion that is a dominant characteristic of human nature. This suspicion is shown in social and business relations, and self-consciousness prompts the individual to attribute to his associates and competitors both motives and intentions which his lack of capacity or confidence make him anticipate; for incapacity is the parent of self-consciousness, suspicion and fear. Again, ordinary social intercourse is made up of personal comment and aspersion, either of the intentions or of the conduct of others. The narrow routine of life, in the small communities from which our patients come, tends to shut out everything but the personal. Even in their reading, outside of melodramatic fiction, and the narration of the personal affairs of the conspicuously wealthy or notorious, they do not go beyond the most personal form of biography; nor do their crude mental processes rise above the simplest ratiocination. Therefore, they are easily confused, fall back on the belief in the occult for relief, or on the anticipation of the supernatural. The victims of mental incapacity, without regard to their intellectual status, will select books that stimulate introspection and minister to their morbid egotism; so that even in their religious reading they are more interested in the lamentations of Jeremiah or the denunciations of Isaiah than they are in the Beatitudes or the Gospel of St. John.

Further, we have found, in the history of these people, that their beliefs with regard to their environment excited neither surprise nor comment in the family, or among the neighbors and friends, until these beliefs were translated into aggressive interference with the convenience or welfare of others, by acts of violence toward person or property, the disposition toward seclusion, inability or refusal to work, or the development of bodily habits that made personal care necessary. All that differentiated these manifestations, in the mind of the community, from ordinary criminal acts, or the in-

cidence of disease, was their persistence without regard to motive, and the absence of apparent physical disorder. The converse of these connotations in the community mind is shown by the frequent commitment to hospitals for the insane of patients ill with typhoid fever, pneumonia, and sometimes acute tuberculosis, because the noise and motion accompanying the delirium have obscured the evidence of the physical condition, or attracted attention away from it.

Among the patients included in this study four were so defective as to be imbecile, and their mental disorder was manifested by incapacity, furtive suspicion, and explosive violence. In three men there was mental reduction and sexual gluttony, and two of these men, who were alcoholics, had the characteristic belief in marital infidelity; also gustatory and olfactory hallucination, dependent on indigestion and constipation, and resulting in ideas of poisoning. In two cases there was aggressive religiosity, the loss of control manifesting itself in attempts to impress on others by violence the militant commands of the Deity. In two cases there was religiosity with exaltation, accompanied by beatific visions, the things seen being suggested by the morbid egotism of the individual, but always in consonance with the conditions in the environment, and the nature of the experiences of those living under similar social conditions, and with like intellectual capacity. In four cases there was religiosity with self-depreciatory ideas, resulting from pietistic comparison, and denunciation by the Deity. These cases were suicidal also. In ten cases the deterioration was so rapid that there was incapacity, suspicion and fear only, without defined or expressed aberration. In thirteen cases the persecutory ideas led to aggressive resentment toward those to whom the voices heard and the acts anticipated were attributed. In twenty-two cases, on the contrary, the voices heard and the things seen prompted seclusion instead. Here, too, those experiences, communal, and individual, that connoted anticipated sources of danger or deprivation, would suggest the manifestations of aberrant mental activity. As our general experience conforms to these special observations, it would appear obvious that the insanity present in these individuals can not be said to have a special form apart from their natural intellectual processes, unless it is implied that the relatives and friends of the individual, without regard to the conditions in the community environment, have a definite form of mental endowment. The history of the individual in these cases, especially from the period of puberty, showed limitation of mental capacity, and the manifestations of mental disorder were determined by the degree and extent of this incapacity, in consonance with the conditions in the community environment. The prime factor in the outbreak was, in each case, mental reduction to the point at which control of the activities manifested in conduct was lost.

The careful study of these cases, clinically, shows that somatic conditions, which interfered with the general physical welfare of the individual, were the determining causes of the deterioration that resulted in the insanity; and the extent and permanence of these changes was the factor on which the result in each case depended. Broadly speaking, so long as the processes of anabolism and katabolism are near their proper relation, the imperfectly developed higher functions of the brain are sufficiently well performed to maintain the relations of the individual with his environment; but with the incidence of the conditions of physical deterioration, the processes of katabolism gradually dominate, and degeneration begins. We are too prone to think of degeneration as a result rather than as a process, and to ignore the fact that this process involves disturbance of the equilibrium between nutrition and waste; also that the process, as affecting nutrition, is primarily quantitative, and that the process may be confined for a long time to deterioration in functional capacity, without morphologic change. To illustrate, the process of arteriosclerosis, with the resulting loss of elasticity in the vessel wall, particularly in the non-anastomosing and poorly supported vessels of the cerebral cortex, interferes very materially with the quantity of blood going to the brain, while this same process in the splanchnic area interferes equally with the functions of the vegetative organs, so that assimilation and elimination are interfered with. It has been our observation, and was very apparent in the history of the cases included in this study, that these somatic changes and the interference with the vegetative functions were always antecedent to the mental disorder. In other words, the brain was not only poorly nourished, but there was chronic intoxication also.

Just as the development of the nervous system is in the direction of the integration of functions that are simple, direct, and unrelated, into the complex, indirect, and correlated, so in its degeneration there is disintegration toward the direct, simple, and unrelated; and this disintegration is primarily functional, and morphologic later only. The result is shown first with relation to vegetative function, is motor incidentally only, and may show no evidence of prehensile or locomotor involvement at all; or at most so far only as coordination is involved, because the functions of direction and control are alone disturbed. So, too, in disintegration in the so-called higher functions of the brain, incoordination comes first, and may be the only manifestation, as confusion; but if the degenerative process goes further, it follows the regular sequence of failure in relation, direction, and control. As the result of the first there is confusion, and of the second, perversion of the special sense function; while the sequence to this confusion and perversion is the failure to correlate the impressions from the environment. That is, there is the inability to adapt internal to external relations.

ABSTRACT OF DISCUSSION

DR. T. DILLER, Pittsburg: This paper recalls to my mind one which I presented to the American Neurological Association a few years ago in which I took the position that we make a mistake in speaking of mental diseases and physical diseases. There is only one kind of disease in my opinion and we should look at it in this way, namely, physical disease. Physical disease expresses itself in manifold ways. There are sensory, motor, and glandular diseases of various sorts and expressions, and among the expressions of physical disease are mental symptoms. Indeed I would venture the broad general assertion that there is no disease of any importance which does not have some mental expression. That is true in fevers and in all the ordinary painful affections; and most of these things of course we do not call insanity. When the mental symptoms are prolonged or profound and pass beyond a certain arbitrary line which each man erects for himself, more or less, we say that the individual is insane; and when the mental symptoms become sufficiently profound we must adopt certain practical measures and the law must step in. While it is not true in the case of most neurologists, yet in the eyes of the general public, and too often of the general practitioner, a broad distinction is made between so-called mental and physical disease. This view should be combated. Dr. Tomlinson has been doing original and splendid work. He has been teaching the doctrine that all disease is physical.

I would like to speak of a thing that I have thought of, and which I have come to believe in more and more firmly as time passes, and that is the necessity of teaching and studying this subject in a concrete way, namely, by psychopathic wards—not at a great distance from the city, not in connection with an ordinary insane asylum, but in intimate association with an ordinary general hospital. I feel sure that there ought to be a psychopathic ward in connection with every great university hospital, and in this ward disease should be studied in exactly the way that Dr. Tomlinson has pointed out. There is a psychopathic ward in Pittsburg, in connection with St. Francis Hospital. In many ways it is not ideal, but we are trying to work along the lines indicated. St. Francis is one, I think, of only two or three similar general hospitals in the United States providing a psychopathic ward.

DR. H. A. TOMLINSON, St. Peter: Since coming to Atlantic City I had the opportunity to discuss with a medical friend a case in which he went into the most minute details of the mental condition of the patient from the standpoint of modern German metaphysics, and he wondered why there had been no improvement in the condition of the patient. I discussed the case from the standpoint described in my paper, and found that there was well-defined evidence, not only in the heredity of the patient, but in the personal history, of the presence of physical conditions sufficient to determine the grafting of mental disturbance on an unstable nervous system; as well as the signs of chronic intoxication, the persistence of which would preclude recovery. I firmly believe that if we are going to deal with insanity successfully, we must give up this futile dallying with metaphysics, and recognize that we are dealing with the general organism.

TRAUMATIC NEUROSIS

WITH REPORT OF CASES *

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COLUMBUS, OHIO

Since the days of Erickson there have been repeated efforts to establish traumatic neurosis as a particular type of disease until at present it is fairly generally accepted, although not uniformly interpreted. Erickson failed to separate the organic and functional cases, and it was not until Oppenheim and Strumpell and others studied the question that the organic conditions were eliminated. Traumatic neurosis is a generic term, and, when speaking of a particular case, we should designate hysterical form, neurasthenic form, psychic form, or mixed form. Such a disposition is made of the term dementia præcox with its different forms. It occurs to me that the difficulty in the use of this term arises out of the fact that the name is based on etiology in conflict with a terminology enforced by the clinical symptoms. This difficulty is particularly frequently encountered in the nomenclature of nervous and mental diseases; however indefinite the term may be, whenever it is used, we usually think of a functional disorder and the possibility of a legal aspect of the case as well as a medical. This dual feature of these neuroses has forced them into a position of considerable importance in the practice of law as well as of medicine. Daily physicians are called on to examine such cases, either when litigation is probable or already involved, and it is in relation to the medicolegal aspect that a serious problem exists for a successful solution. Unfortunately, the legal profession and the medical entertain some opposing views concerning such cases. The objective and subjective symptomatology seems to be the ground of contention between the legal minds and the medical. The law insists on recognizing the objective symptoms only, while the physician, recognizing the importance of these, also makes important use of subjective symptoms, real and unreal, in his diagnosis. It seems to me that the error committed here lies in the fact that all subjective symptoms are stricken out of evidence, without regard to the discriminating skill of the physician, simply because of the possibility of all or part of them being assumed. It is true that it is difficult for attorneys to understand how diseases may exist without a gross organic lesion; therefore, they are loath to regard a functional disorder as a real disease and look on them with a great deal of suspicion. Even when the physician maintains that a disease exists, if an organic foundation can not be discovered, the lawyer will look on the assertion with considerable doubt. Indeed, it is this possibility of fraud on the part of the patient, the attorney and the physician that has given such prominence to these traumatic cases. Fraud is exhibited on the part of the patient by malingering for the purpose of gain. Frequently it has occurred that attorneys cautiously aid and abet these endeavors, and also must we admit the fact that physicians are not too careful sometimes and persuade themselves to join or cooperate in these fraudulent attempts. The whole situation, it seems to me, is very much entangled and it too frequently happens that worthy persons fail to be properly compensated, and the unworthy ones recover damages unjustly.

How can this problem be solved so that each case is more surely to receive justice? Can we point to the German regulation of these matters and say that is the solution? I do not believe that the German system of insurance against accident is a perfect solution of the problem involved in this question, and yet it is a great improvement over no system at all, as in America. It seems to me that the great advantage of the German system lies in the fact that it has not the features which invite investigation. The disadvantage in this system is that it does create an inviting field for malingering and also establishes a means for the development of neuroses. It is fairly well recognized that the results of an accident are encouraged to become far more serious and pronounced by the prospect of a recompense or an allowance. Admitting this weakness in the German law, I still maintain that it is far better than the present loose and confusing methods pursued in the United States.

I hope that the three cases I am reporting carry with them sufficient interest and importance to warrant their record. The first is an example of traumatic neurosis (hysterical form), diagnosed as an organic case originally, the patient operated on for brain abscess, and the case later diagnosed as hysteria, which it proved to be. The patient became entirely well after having recovered damages from the city in which her accident occurred.

The second case is one of neurosis (hysterical form) in which is manifest a rather fragmentary dissociation of the personality. Usually when there is trauma there is also shock, psychical or physical or both, and, inasmuch as there is hysteria in cases of dissociated personality, we can expect trauma and its attending effects to be a fruitful cause of such conditions.

The third case represents a psychosis in which the head injury could be reasonably regarded as the cause. Of course, the fact that the patient had dissipated considerably should not be regarded as less than a contributing factor. There are remarkably few cases of insanity, comparatively, in which heredity, severe illness, dissipa-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

tion, worry and other common causes can be eliminated and head injury be assigned as the true cause of the attack.

CASE 1.—*History.*—A young woman, aged 19, teacher, American, on Feb. 18, 1906, at 10 a. m., was thrown out of a buggy in a runaway accident. She suffered a concussion of the brain, due to the head striking on the street. The point of injury was in the left temporal region about one inch in front of, and three inches above the ear. The skin was not broken. She was dazed for a moment but went on her way. A severe pain in the head developed and in the evening she became delirious. During the next four days she was conscious but suffered some pain in the head and back of neck. A physician was not called until three days after the accident, at which time she was in a maniacal condition, chattering and laughing continually. She tried to escape from the house, but could not balance herself sufficiently to walk well. Her pupils were greatly dilated and she complained of severe headaches. The entire scalp, posterior part of neck and shoulders, and cervical portion of the spine were extremely hyperesthetic. The head was drawn to the left side. No anesthesia or paresthesias were discovered. She slept very little. There was no effusion about the eyes, and no escape of blood or serum from the nose or ears at that time. This condition lasted about ten days, after which time the patient became quiet, slept well, ate well, and seemed to be in a fair way to recover. She had a continuous frontal headache for nine weeks; for ten weeks had furuncles in both external auditory meati. About two weeks prior to her admission to the hospital, her ears began to discharge.

Course of Disease.—The patient was admitted to the hospital May 7, ten weeks after the accident. She was quiet and affable and did not exhibit any noteworthy symptoms for four weeks, except pain and tenderness about her ears and some discharge from them. Treatment by a specialist soon effected a recovery from the ear conditions.

June 12, 1906: The patient was observed twitching while asleep. She was aroused and the twitching at this time ceased. After that time she was more nervous and her right leg twitched most of the time, especially after any exercise. She stated that both her right arm and right leg were numb, especially in the distal portion, that is, below the elbow and below the knee. Her hand grasp was distinctly weaker on the right than on the left, and in walking she was inclined to drag her right leg to a slight but perceptible extent. At this time the question of diagnosis became a matter of great importance and the attending physicians were somewhat in doubt as to whether they were dealing with an organic condition or one of hysteria.

June 14, 1906: The patient's hand was noted to twitch in an irregular manner. This twitching was not confined to the hand, but extended to the muscles of the forearm and upper arm. It appeared to be worse when the patient was somewhat excited or attention was drawn to the matter. The patient stated that occasionally her right limb twitched also, but this was not noted during the examination. The pupils were equal, moderately dilated and reacted to light. In the past it had been frequently noted that the pupils were considerably dilated. The action of the facial muscles was symmetrical. The tongue protruded in a straight line with good movement of the same in either direction. The hand grasp in the right side was extremely weak, the pressure being very gentle; the power of flexion and extension at the wrist and elbow also extremely weak. The patient could not, while lying in bed, raise the hand directly to the nose, but could do so by sliding the hand along the body. The power in the lower extremity on the right side was also much diminished. The knee-jerk was very much exaggerated, and there was a tendency to the patellar clonus. No ankle clonus was present; no plantar response whatever could be elicited. On the left side the reflexes were normal. There was complete loss of sensation for touch, temperature and pain in the right lower extremity, up to the groin. About one inch above the anterior superior spine of the ilium a pin-prick coulid be felt, but simply as a dull sensation. The same condition prevailed in the upper extremity. A pin-prick could not be felt at all until the lower deltoid region was approached from below. In this deltoid area and between that point and the medium line a pin-prick which was made quite deeply could be felt as if it were the pin-head. Tactile sensation was lost all over the right side for any ordinary touch, although, as stated above, the deep pin-prick could be felt in the region named and over the trunk on the right side as a dull sensation. Both the temperature and pain sense were entirely lost over the whole right side. This anesthesia extended from the median line of the body in an irregular line varying from one to three inches to the left of the median line. Over the left lower extremity, and to some extent over the whole left side of the body, sensation was slightly impaired, touch not being readily perceived, and pin-pricks in places being felt as dull points. This, however, was not constant and was more marked over the left lower extremity than other parts. Motor power on the left side was good. In examining the cranium, especially over the left side where the patient states she received her injury, there appeared to be a slight depression over the posterior portion of the left frontal bone. This depression, however, was slight and may have been congenital. The patient stated that when the head was pressed firmly on each side with the hands, there was a dull ache within. The patient had a temperature of 100 degrees the previous night, but this morning her temperature was normal. Mentally she seemed a little excitable and talked with less reserve than usual. Her conversation was entirely coherent, however, and showed no other abnormality than a little tendency to repeat herself, and to loquaciousness.

June 15, 1906: The following changes in the patient's condition were observed this morning: The patient's tongue was found to protrude decidedly toward the right when extended. There was considerable tremor of the right eyelid when the eyes were firmly closed. There was also some twitching about the mouth, especially when the eyes were closed firmly. There was distinct spasm of the lower limb during regular intervals. No plantar reflex of any sort could be obtained. The previous night, about 12:45, the patient had a localized convulsion, involving the right side during which she was apparently unconscious. She stated that just as she came out of the convulsion she felt the right side of her face twitch. This morning, about 4 o'clock, she had another similar convulsion involving the right side in which she rolled out of bed. During the day she had at least two similar attacks, with large movements involving the right side, and unconsciousness for a few seconds. Motor power was still almost entirely absent on the right side.

June 16, 1906: Consultation with the surgeon, otologist and neurologist was held. The balance of opinion favored a probable abscess in the left side of the brain and operation was recommended and done. The findings were negative.

June 26, 1906: Examination of tendon reflexes of arms showed them to be overprompt and markedly exaggerated; the one most noted was the action of the supinator longus. The condition existed equally in the arms. This morning she failed to protrude her tongue farther than her lips. Her speech was improved slightly, yet was defective, one side seeming to be more affected than the other. Her speech was rather spasmodic or measured with a certain emphasis regularly. She omitted some single words in a sentence occasionally. Sometimes she could not say some words. For example she said: "I seel so feepy." When conscious she was inclined to joke and talk considerably.

June 27, 1906: During the night the patient had many very severe convulsions, characterized by greater excursion of movements than at any previous times. It was noted that she had ten spasms within one hour, from 8 to 9 o'clock. The spasms followed at short intervals. During the intervals between the spasms she seemed to have regained consciousness quite temporarily. From about 1:30, she passed into a stuporous condition and remained there until 5 o'clock. Observations at 10 a. m. revealed that she had not improved as far as the convulsions were concerned, still having them at short intervals, perhaps not quite so severely, and with less range of movement. The convulsions, however, were generally

characterized by severe jerkings, also rigidity and opisthotonus; invariably the back and neck were bent. Immediately following a convulsion, the patient would seem to be provoked at herself that she could not remain conscious and prevent the "spells" as she called them. Immediately after a convulsion she would say: "Oh, shoot, if I could get over this, I would be all right." During one of the conscious intervals she remarked that she felt well and enjoyed her breakfast very much. Her loquacious manner at this time did not appear to be quite normal, however. During these periods of apparent slight delirium, she would say and do things that perhaps she would have regretted if she realized them. She would at times, for example, criticize the appearance of her nurse, as well as the nurse's manner toward her, only to feel very badly about it when she accidentally learned that she had made these unkind remarks. She could protrude her tongue quite well. There did not seem to be any increase in the power of her right arm or hand. There was still a marked disturbance of the sensations. There was entire loss to tactile pain and temperature sense on the entire right side of the body, including extremities, face and head. This loss extended slightly beyond the medium line. We noted that this was more at the upper third of the chest where the loss extended to the nipple line. Below this on the chest, the limit was a line midway between the medium line of the chest and the line of the nipple. The only disturbance of sensation on the left side was a delay which amounted to three seconds. This was found to be on the entire left side. There was some amblyopia. The associated movements of the eye were very good. There was a loss of conjunctiva reflex in both eyes. There was a slight difference in the palpebral fissure, the left being greater than the right. She could not open her eyes widely. On looking upward, the eyes deviated equally to the right. There was a weakness of the entire right side of the face. In the movements of her face greater range could be noted on the left side than on the right. The tongue deviated on protrusion slightly to the right side. Her hearing was normal. Speech was improved although there was some defect yet. There was a peculiar measure in her speech and certain emphasis at intervals, and a thickening of the speech.

June 28, 1906: Examination revealed anesthesia of both nostrils, contraction of the visual field, dilated pupils with reaction to light but not to accommodation. Tactile sensation was retarded three seconds and after irritation was removed she would feel it for three seconds. The right half of the patient was still anesthetic; the mouth slightly drawn to the right. There is no improvement in the strength of the right limbs.

July 10, 1906: There was equal loss of tactile sense on the right hand, arm, legs and right side of face, head, neck and body; also on right side of the tongue; loss of sense of pressure to the right arm, hand and leg and right side of body. There was considerable exaggeration of the patellar reflex, yet it was slightly delayed. The tendon reflexes were generally exaggerated. At this time the visual disturbances were particularly noteworthy. At a distance of three feet the patient could not determine a toothpick or street car ticket. She could distinguish them at one foot distance. Three inches from her eyes she again lost the power of vision. Her vision varied from time to time, but at present she could only recognize objects between six and fifteen inches from her eyes. The two eyes were alike in this regard.

After being discharged from the hospital, the patient got along very nicely for several months. She brought suit against the city in which her accident had occurred and received a judgment for $8,000, and then had the following experience.

"January 20, the receiver [at the telephone office] struck my head [on the left side of the head at the seat of the former operation] and made me rather sick in my stomach right at first, and then I had a dreadful headache; didn't feel very well, but I pretended to feel all right, and worked two days. The evening of the second day I didn't feel very well, and began to feel rather queer in the right side; didn't know what was the matter. After awhile, I began to lose feeling on that side; I noticed I couldn't get my hand up very well. I wanted to pick the plug up, and I gradually lost use of my hand; got so I couldn't raise it up, and then I spoke to the chief operator and told her that I had to leave the board, and she helped me get my hat and coat on, and my mouth was drawn crooked all that time; when I got home I sat down and couldn't get up again. Later the doctor was called and gave me some medicine, but I kept getting worse until I couldn't use that side at all. The next day I felt weak and sick at my stomach. At first, I felt rather drowsy. I got so I could get up and walk around and use my foot by dragging it, but I couldn't use my hand for some time. For about three or four weeks I couldn't use my hand, couldn't lift it up. I had to move it around where I wanted it; just had no use of it at all. It seemed to affect my arm and face more than anything else. It affected my leg for some time, but not as long as my hand. I went back to work a week afterwards. When I went back I couldn't use my hand. I expect it was about two months before I got feeling in my hand again so that I could use it, but the sensation wasn't back yet. About the time I got over that the second attack came on, but it only lasted a couple of days. It came on in the same way, but it was very light at that time. It seemed to affect the whole side of my body about the same time. The first thing I noticed I couldn't get my hand up to pick up the plug, but I hadn't tried to walk until I got up to go home; I couldn't walk very well. I walked home, but I didn't go very fast, and they couldn't understand me very well. I could talk, but then part of the time they couldn't understand what I was trying to say, something about like it was last summer. After the second attack I wasn't bothered that way any more."

The patient apparently has recovered and is now in a training school for nurses.

CASE 2.—*History.*—A man, aged 30, machinist, American, fell from a line shaft onto a wheel lathe fourteen feet below, injuring his left shoulder slightly and causing a scalp wound one inch above left ear. He was unconscious for several hours. After a few days he was up and about but experienced what he termed "spells." *Wanderlust* characterized him now where before he was steady and settled. There were periods of lapse of memory during which he would quit his work, start out, and later find himself in some strange place. During these lapses, which were frequent and of varying duration, ranging from a few hours to a few days, he traveled considerably over the western states from Ohio to California, and eventually he landed in Columbus in August, 1906. He was committed to the hospital as a result of his strange behavior.

Attacks Observed in Hospital.—For several days he exhibited nothing noteworthy except the very unusual history of his experiences. A short time after his commitment the patient complained of having a dull throbbing pain low down in the occipital region. He felt very dizzy and after his evening meal was attacked by a spell of vomiting which made him feel very weak. He went to bed early (7:30) and was soon asleep. At 4:30 Thursday morning he was found lying on the bed in a semi-reclining position, with his eyes open, fixed and staring. He was told it was time to get up; he took no notice and made no reply. A few moments later he was again told to get up; he did so and sat on the foot of the bed, saying in an absent-minded manner as if talking to himself, "I am not going to work to-day; the machine will not work and I can not get that piece made." He dressed slowly and when told to wash himself and get ready for breakfast, did so in an offended manner. After he had prepared himself, he walked out on the veranda and sat down, taking no notice of anything around him, and staring off into the distance. He would not answer any questions, but kept saying, "I want my hat." He soon got up and walked into the hall-rack, picked up a hat, tried it on and on being told that it was not his, he laid it down and walked out on the veranda and sat down. He heard a locomotive whistle, which seemed to give him a happy thought. He immediately asked for his hat and walked rapidly down the hall and looked out of the window toward the railroad. Every time he heard a whistle blow, he would ask for his hat and hurry in the direction whence he heard the whistle. At 6:30 he was asked

if he wanted any breakfast, and he said, "No," but when told he had better eat something, he went in to breakfast, sat down, drank a glass of water, and in a few minutes left the table hurriedly, and when about to leave the dining-room, said, "Good-bye, people." He went to his room, undressed, and went to bed, pulling the cover up over his head, and at 7 a. m., when asked how he was, he seemed to come to himself and asked about the time. He said he felt so very weak and tired that he did not know what to do. He asked for a drink of water and if he could have a cup of coffee. On being questioned as to his actions during the few hours previous, he said that he did not know a thing that had happened. Within the several weeks spent in the hospital under my observation, he had several attacks characterized chiefly by amnesia, desire to wander, sullenness and irritable disposition. Later he left the hospital apparently in a very much improved condition, and soon afterward enlisted in the army.

Later History.—Several months passed and nothing was heard of him until finally he wrote to me from Fort Leavenworth, telling of trouble he had got into there while on guard duty. He had been arrested for drunkenness and misconduct while on duty. It developed that he had been in one of his peculiar hysterical attacks; he later was discharged from the army. I did not hear anything more about the man for several months, when word came to me again that he was in trouble in some town down in New Mexico. I wrote to the authorities, giving them a history of his case, but have never heard from him since.

CASE 3.—*History.*—A man, aged 55, physician, weighing 227, with no hereditary taint, who drank considerable liquor, but had no luetic history, one evening was returning home in his carriage; his horse became unmanageable and he was thrown from the vehicle, rendered unconscious and remained so for forty-eight hours. He sustained a scalp wound along the right parieto-occipital junction. The fracture could not be determined. On return of consciousness he presented the following mental symptoms: Disorientation as to time and place; retrograde amnesia (periodical), disturbed perception, diminished sensibility, emotional weakness, memory fabrication, incoherent and rambling conversation; feeling of well-being. On the admission of this patient to the hospital, he did not realize the nature of the institution at all. When questioned concerning the condition of his health, he would declare he was perfectly well and objected to any treatment other than the physiologic remedies. Concerning the runaway accident he displayed fabrication of memory, describing the acident, why it occurred, and how trifling it was, he not having been injured in the least, telling how he got up from the ground and went about his usual business. With but little provocation he at times would exhibit considerable emotional irritability, while at others he would seem quite indifferent to any external stimuli; even such as are ordinarily regarded irritating. Often would he sit for an hour at a time seriously telling experiences (elaborated) to a demented catatonic who, of course, was not giving him any attention or reply. To his physician his tales of professional experiences were very fanciful and improbable. This patient, after a few weeks in the hospital, began to recover his mental powers and faculties, and recovered after a few months' illness.

ABSTRACT OF DISCUSSION

DR. A. C. BRUSH, Brooklyn: I object to the term "traumatic neurosis" as it implies a form of nervous disease due to injury, and does not tell the real story. The use of such a term in medicine is proper, but when we come, as Dr. Gaver has said, to deal with the legal side of the question, it impresses both court and jury with the idea that there is a distinct disease due to trauma, and this leaves the claimants and their counsel at liberty to play on the fancy and increase the severity of the case in the eyes of the jury. In dealing with such cases in court, I absolutely exclude that term and characterize the condition at once as hysteria or neurasthenia. The jury all know what hysteria is, and they all know what nervous prostration is; but they do not know what traumatic neurosis is; and the result is that that term has done more to rob corporations, city railroads and others, than anything else in the world. Again, many writers have too vague a way of stating the prognosis. The prognosis is that of neurasthenia.

DR. G. T. HARDING, JR., Columbus, O.: I can not agree with the statement that the term traumatic neurosis has done more to rob corporations than any other term used in medicine. Surely this group of medical men should not feel that a disabling neurosis, having its inception in the shock or injury of an accident, partakes of the nature of a fraud because it may be possible to demonstrate that certain mental processes have subsequently contributed to the patient's condition, or help to keep up his symptoms. No other class of medical men, and especially those who deal chiefly with organic disease, seem able properly to appreciate the seriousness of that mental instability that can arise from shock and injury, and that puts its victims in pitiful slavery to suggestions and mental representations. I seriously doubt whether this lack of insight on the part of the profession has resulted in more robbery of corporations than in injustice to a certain class of invalids; and for this reason I feel that neurologists should make an effort to educate their fellow physicians in regard to the true nature of traumatic neuroses.

DR. E. E. GAVER, Columbus: I did not mean to convey the impression that I believe that there is really such a distinct disease as traumatic neurosis. I think these cases are all hysteria, neurasthenia and a mixture of both, or psychoses.

EXPERIMENTAL PRESSURE ATROPHY OF THE THYROID

WITH BRIEF SUMMARY OF THE PRESENT KNOWLEDGE OF THE GLAND *

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INTRODUCTION

Up to a little over a hundred years ago, very scant attention was paid to pathologic conditions of the thyroid. In fact, endemic strumæ, at least in goitrous territories, were considered quite natural and even beneficial. The sporadic cases were, as a rule, confounded with tuberculous adenitis. Not until 1800, when Fodéré first described the difference between struma and cretinism, did the thyroid begin to attract any special attention.

During the last century such men as Eulenberg, St. Lager, Bircher, Wollfer, Kocher and others devoted much time and labor to study of the gland. Fresh stimulus was infused into the work by the occurrence of the condition now known as "cachexia strumipriva" following complete extirpation of the thyroid; by the discovery of iodin in the gland of Bauman, and by experimental work on the organ by Cyon.

In recent years the medical world has been swept by an epidemic of experimental work on the gland.

Abroad the Kochers, Bauman, Cyon, Oswald, Ewald, and a host of others, and in this country Halsted, Hunt, McCallum, Marine, Mayo and others, have done an enormous amount of excellent work.

I intend briefly to review the literature and to report the results of a year's research on the gland.

ANATOMY (COMPARATIVE)

Owing to the vast amount of work that has been done and is being done on the dog, I deem it to be of some interest to give briefly the anatomy of the gland of that animal. For the human anatomy I refer to text-books.

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* From the Hull Physiological Laboratory, University of Chicago; read before the Chicago Medical Society, April 14, 1909.

* On account of lack of space, this article is here abbreviated. The complete article is presented in the author's reprints, a copy of which will be sent by the author or by THE JOURNAL on receipt of a stamped self-addressed envelope, if the request is received within four months.

The dog has, as a rule, two glands situated in the lower and anterior aspect of the neck on each side of the trachea. In only one of fifty dogs did I find an intervening isthmus. Each gland is egg-shaped, brownish-red in color, and of variable size. The consistency is that of a human kidney. It is covered externally by a thin capsule. Posteriorly the gland is attached to the deeper structures by a kind of a mesentery through which runs the vessels, nerves and lymphatics.

The vascular supply is very abundant and probably relatively greater than in any other organ. Generally the gland is supplied by one artery which enters the gland at the superior pole. Sometimes, however, as in the human being, there are two, the superior and the inferior thyroid originating as in man. The veins form large trunks emptying into the internal jugular.

There is especially one prominent tributary which extends halfway around the gland on its external surface. This vessel may be appropriately termed the vena semicircularis and would be the one most easily used for the blood work on the gland.

The lymphatics are numerous, and of great size. The nerves are derived from the sympathetic and the pneumogastric. The important anatomic relations are similar to those in the human being.

CHEMISTRY

An enormous amount of work has been done on the chemical analysis of the gland, but with very opposing results. The following is the composition which is generally believed to exist in the average normal gland:

COMPOSITION

Inorganic—82 per cent. to 84 per cent.
- Water.
- Iodin.
- Phospnorus.
- Iron, etc.

Organic—17 per cent. to 19 per cent.
- Nucleoproteid.
- Thyreoglobulin.
- Albumin.
- Colloid.
- Fatty acids.
- Lactic acid.
- Xanthin.
- Hypoxanthin.
- Inosit..
- Leucin.

PHYSIOLOGY

FUNCTION OF THYROID (HISTORICAL)

The older authors attributed various functions to the thyroid, such as protection from cold (Wharton); protection for the large vessels and nerves (Luscha); some regulating connection with the vocal organs (Santorin Winslow); blood-forming function (Credé, Zesas); moderating the blood supply to the head (Maignien, Guyon); protection of the brain from hyperemia (Simon Waldeyer); taking up blood at night, producing anemia of brain and thus sleep (Fomeris); a means of draining blood from the lung, protecting it from congestion (Kocher); rudimentary lung (Grutzner); some relative function with the genital organs (Guilot, Lawson-Tait, Bennet, etc.).

The first attempts at experimental excision of thyroid were made in the forties by Astley Cooper, Bardeleben and Maignien, with doubtful results.

In 1856 Schiff, after numerous experiments, reported that all the animals died. His paper did not at the time receive any special attention.

When later on in 1882, however, Reverdin, Kocher, Billroth and Weis reported the enormous disturbance in man caused by thyroidectomy, Schiff, having withheld his final report, related his experiences with sixty thyroidectomized dogs, and then received the credit he deserved.

By these experiences with the human and animals, the peculiar condition later termed cachexia strumipriva was produced, and its close resemblance to myxedema noted.

The symptomatic results following thyroidectomy are those of myxedema in man.

To these formerly were added tetany, but that symptom is now definitely attributed to removal of the parathyroids.

ADMINISTRATION OF THE THYROID GLAND AND ITS EXTRACTS

In 1884 Calzi and later Fano and Zanda succeeded in alleviating the symptoms in thyroidectomized dogs by transfusion of blood from normal dogs. A few years later Vassale used an aqueous extract of thyroid intravenously with good results. This was followed by the subcutaneous use of similar extracts by Gley, Murray, Bertsowsky and others. All these experiments were performed on animals.

It was at first, in man, in cases of cachexia strumipriva that the use of the gland per mouth demonstrated such splendid results, showing a gradual disappearance of all the symptoms as long as treatment was continued.

The same results were later obtained in animals by Eisenberg, Lanz and others.

Since Bauman's discovery of iodin in the gland the important relation of iodin to the physiologic activity of the gland has been strongly emphasized by Oswald, Cyon, Magnus Levy and others, and it has been decided by these investigators that the substance known as iodothyrin is the active principle of the gland. Therefore, most experiments on the physiologic action of thyroid have been done with this substance, or the gland itself.

Cyon and Oswald found that on injection of iodothyrin or its mother substance, iodothyreoglobulin, there was a marked augmentation and increased strength of heart action with diminished blood pressure, and, as this occurred after section of both vagi or atropinizing of animal, they concluded that the result was obtained from direct action on the heart.

Kobert, Van Kraus, Friedenthal and Furth and Schwartz found no action of iodothyrin on the heart.

Cyon, from his experiments, finds that the excitability of the vagi is greatly increased by injection of iodothyrin. The stimulation of the central end of the cut nerve before injection caused very slight change, but after injection the same strength of stimulation caused, at times, complete stoppage of heart. Even after atropinizing the animal, there was momentary change in heart action. Furth and Schwartz report negative results from similar experiments.

METABOLISM (A) IN NORMAL MAN OR ANIMALS FOLLOWING ADMINISTRATION OF THYROID OR ITS PRODUCTS

The great metabolic phenomena caused by certain pathologic conditions of the gland or by its removal clearly demonstrate its vast influence on the nutritional changes in the organism.

In order to determine the particular changes taking place, numerous experiments have been made by the administration of thyroid or its products and by the removal of the organ, and the noting the effect on the various metabolic activities.

1. *Effect on Nitrogen Elimination.*—All investigators agree on impossibility of an animal being able to main-

tain nitrogen equilibrium, more nitrogen being eliminated than introduced (Vermehren, Richter, Scholtz, Zinn, Magnus Levy, etc.).

2. *On Gaseous Exchange.*—Voit found that in animals brought near nitrogen equilibrium carbon dioxid rose about 20 per cent. on being fed by gland itself. In starved animals the carbon dioxid output averaged about 16 per cent.; carbon dioxid exhalation rose 6 per cent. in animals fed iodothyrin; the oxygen intake rose to 13 per cent., consequently the respiratory quotient was lowered.

METABOLISM (B) IN HYPOTHYROIDISM

Proteid Metabolism.—In these conditions there is a general lessening of all metabolic activities. In thyroidectomized animals, there is a decreased nitrogen elimination (Dulta and La Monaco).

There is, however, a marked elimination of ammonia in the urine following thyroidectomy, causing it to become alkaline in reaction (Cowendo, Luzzato).

Administration of Thyroid or Its Products.—This is soon followed by increased metabolic activities, increased nitrogen elimination, increased gaseous exchange, etc.

METABOLISM (C) IN HYPERTHYROIDISM

In this condition all the metabolic activities are greatly increased.

Proteid Metabolism.—Lustig was the first to call attention to greatly increased nitrogen elimination with great reduction in weight. This was confirmed later.

Influence of Feeding of Thyroid.—Scholtz and Hirschhoff found no change taking place. David observed an increase of 90 per cent. of nitrogen output in one of his cases. Matthes also observed quite a rise in his cases. The authors just cited and several others also found great increase of acid phosphates in the urine.

TRANSPLANTATION

The occurrence of operative myxedema naturally brought up the subject of transplantation.

The first attempt was made by Schiff, who was closely followed by Eiselberg and Kocher, and later by Hoarsly and Bircher.

The gland was transplanted at first into the neck; later mostly into the abdominal cavity with temporary improvement of the patients, the transplanted glands, as a rule, undergoing gradually atrophy or absorption.

Payr, whose careful experiments were commented on by Kocher, selected the spleen as the site of transplantation, and obtained the most excellent and lasting result by transplanting part of a mother's gland into the spleen of her child born with cachexia thyreopriva.

Through the direction of Kocher, Miss Serman has recently done a series of experiments of transplanting gland into the junction of epiphysis and diaphysis of bones, this area being selected from its great vascularity and still resistant structure, which makes it possible to form a pocket for the imported gland.

As a rule, the tibia was selected; a cavity was scooped out, and in it was placed a silver bullet. Three or four days later the wound was reopened and the bullet removed. By this time, healthy granulation tissue had formed on the walls of the artificial pocket. A piece was then resected from the animal's thyroid and placed in the cavity and skin closed.

Later complete thyroidectomy was performed without any disturbance to the animal. When still later a part of bone containing transplanted gland was resected, the animal presented all the symptoms of cachexia strumipriva, and shortly died.

So far as I have been able to ascertain from the literature, the excellent and lasting results of Payr's case has not as yet been duplicated.

INTERNAL SECRETION

Haller, in his remarkable medical work (1730), mentions that Ruysch advanced the supposition that the "blood vessel" glands manufactured some substance that was thrown into the blood current.

It was, however, Bernard's work a hundred years later on the glycogenic function of the liver that led to the adoption of the term "internal secretion."

At first in 1880, when Brown-Séquard, who was aging rapidly, began to experiment on himself with testicular extract, hoping thereby to regain vigor and youthfulness, was any special effort made to solve the problem. Since that time, volumes (the result of exhaustive experimental work) have been written on this subject by such men as Howell, Cyon, Oliver, Schafer, Bredle, Renier, Svehla and others.

Karlson has for several years been doing careful and conscientious work trying to isolate the internal secretion of the thyroid. He has strong reasons to believe that it will be found in the lymph discharged from the gland.

I have seen him inject lymph derived from the thyroid of goiter dogs into normal dogs; he invariably produces tachycardia and intense general tremor in the injected animal.

Blood coming from strumous thyroid injected into a normal animal causes no such manifestations.

In spite of the great amount of work done, no material advance has been made in regard to the nature or even presence of an internal secretion of thyroid.

EXPERIMENTAL HYPERTHYROIDISM

Working on the theory of hyperthyroidism in Basedow's disease, a number of investigators have more or less successfully produced Basedow-like symptoms in man and animals by overflooding the system with thyroid products. Thus Emiguez, Canter and Lang worked on dogs and rabbits, Angiolella and Ludke on guinea-pigs, and Edmond on rats.

The most constant symptom recorded by these and other observers was tachycardia, and, next to that, emaciation. Other manifestations mentioned are dyspnea, diarrhea, nervousness, enlargement of the thyroid, widening of the palpebral fissure, exophthalmos,[1] etc.

In man, palpitation of the heart, nervous and metabolic phenomena have been observed.

By experiments, Furth and Schwartz find that outside of a transient tachycardia and very slight loss of weight, overdosing with thyroid causes no other disturbance.

DETOXICATION

Blum, who advanced this theory, believes that in the course of metabolism there is manufactured in the body a toxic globulin, and that this later is detoxicated in the thyroid by the chemical action of iodin.

Hunt supports this theory in reporting a series of highly interesting experiments, showing that mice fed with thyroid preparations withstood much larger doses of acetonitrite than control animals.

This has been confirmed by Karlson and others.

1. Observers are not unanimous as to the occurrence of exophthalmos in the lower animals.

Bevan tells me that in one of the trout-tanks in an eastern fishery most of the fishes became affected with cancer of the thyroid, and that this was accompanied by great protuberance of the eyes. This was undoubtedly exophthalmos, although it was thought to be due to metastasis behind the eye.

It is interesting to note in this connection that fishes in other tanks were unaffected.

RELATION OF THE THYROID TO OTHER DUCTLESS GLANDS

For years it was thought that certain ductless glands worked vicariously with each other. This has been supposed to be especially the case between the thyroid and the hypophysis. In cases of atrophy of the thyroid, it was often found that pituitary body had become greatly hypertrophied in a supposed effort to take up its fellow's action.

Oliver and Schafer, through their work, confirmed by many others, have thrown great doubt on this supposed vicarious function. They found that extracts of the two organs produce entirely contrary physiologic effects.

The relation of the parathyroids to the thyroid is not at all settled, but recent researches seem to indicate that probably these organs have no functional relationship.

HEMATOLOGY

By far most of the work on the blood done in connection with the thyroid has been worked out in Basedow's disease, and according to Kocher the hematologic picture is pathognomonic in this condition.

Through Kocher's instigation, Drs. Wageli, Kurt, Steigen and Kollman have carefully examined and tabulated 106 cases.

These men find that the erythrocytes in a great number of cases, especially in young females, are slightly higher in number than normal; somewhat over 5,000,000 per cu. mm. As a rule, throughout the cases, there was no anemia.

It is, however, in the leucocytes that characteristic deviations from the normal are found.

In a great majority of the cases, there was a distinct leukanemia; the leucocytes averaged about 5,000 per cu. mm., but in one case numbered as low as 3,700.

As a rule, this low count affected the polymorphonuclear leucocytes exclusively, these often falling as low as 35 per cent. The lymphocytes, on the contrary, showed an absolute, though more often relative increase in numbers, and it is this condition, according to Kocher, that constitutes the main characteristic of the blood picture of exophthalmic goiter. This lymphocytosis may reach 57 per cent. instead of the ordinary 25 per cent.

This leukanemia with leucopenia of the polymorphonuclear leucocytes and absolute or relative lymphocytosis is, according to Kocher, characteristic of exophthalmic goiter. The condition is most marked at the height of the disease.

Sometimes after excision of the gland there is a marked change toward the normal. This also takes place after ligation of vessels, but in a less degree.

Sometimes the eosinophiles were greatly increased (15 per cent.), but as this does not occur with any constancy this condition is not specially emphasized.

Marine, who has done more histologic work on the thyroid of animals than any other man, finds, in examination of 202 Cleveland dogs, that 90 per cent. have goiters.

He divides the thyroids into three main groups—normal, hyperplastic and colloid.

The hyperplastic corresponds closely to the typical pathologic picture of primary exophthalmic goiter in man. Marine considers hyperplasia a physiologic reaction to a deficiency, probably of iodin. This hyperplasia takes place in remaining portion of resected normal gland (Halsted).

The colloid goiter, he reasons, is in all probability usually preceded by the hyperplasia, and is really a quiescent stage of the same, or an attempt of reversion toward the normal. He bases this conclusion on the fact that hyperplastic dogs fed with iodin invariably undergo this change toward the normal. The pathologic changes, I found in my Chicago dogs, correspond exactly to the splendid description given by Marine.

I wish in addition to emphasize specially the tremendous size of the lymph vessels in these glands. Very often did I find the upper pole of the thyroid, sometimes the entire gland, and in two instances the surrounding muscles, enveloped in a frothy substance which we found to be lymph. I should like to know whether this has been observed in the human being. The above-described condition seems to indicate that the lymph in this region plays an important rôle and should receive careful investigation. Even in other parts of the body may there be excess of lymph.

A colleague recently operated on a patient with unrecognized Graves' disease and found the entire abdomen filled with lymph. Sponging only seemed to increase the excessive flow. A few hours after the operation all the symptoms of Graves' disease appeared in its most aggravated form.

Kocher, in a recent article, very interestingly discusses the similarity of the anatomic picture, and some of the symptoms of lymphatic leukemia, status lymphaticus, Hodgkins' disease and Graves' disease.

In lymphatic leukemia we have lymphocytosis, enlargement of the spleen, the lymph glands and the thymus, loss in weight and strength and excessive water elimination; so also in Graves' disease; in status lymphaticus, the sudden deaths, danger of anesthesia as in Graves' disease, etc.

This certainly gives food for thought, and will surely open up new channels for investigation.

RELATIVE FREQUENCY OF GOITER IN DOGS

In palpating two hundred dogs, I found eighty-six (43 per cent.) with goiter. At the University of Chicago, where all the goiter dogs are segregated by inspection, one-fourth of all dogs are thus found to be goitrous. Of course, should the thyroids of the dogs I palpated be examined histologically, there would be a much higher percentage.

Marine found 90 per cent. of the Cleveland dogs having goiter, but it seems to me that the standard of normal is then probably put a little too high.

MODERN OPERATIVE METHODS

To Kocher, whose name seems indissolubly associated with the term "goiter," we are indebted for most of the modern surgical technic on the thyroid.

The advance under his leadership has been very rapid, and, though certain that his individual operative work will be equalled by only a few, the great mass of operators have certainly gained enormously by his teachings.

He enumerates the modern methods as follows:

1. Excision (Kocher).
2. Enucleation (Porta Socin).
3. Resection (Mikulicz).
4. Combined methods.
5. Exenteration (Kocher).
6. Ligation of arteries (Wolfer).

In order to avoid the parathyroids C. Mayo by his excellent method leaves the posterior capsule of the gland. This procedure is now followed by most surgeons.

Ferguson, in his recently introduced ingenious method, does the entire work intracapsular. The vessels are tied in the gland substance in such a manner that after resection four buttons of thyroid tissue corresponding to the poles are left *in situ*, thus insuring against cachexia strumipriva.

EXPERIMENTAL PRESSURE ATROPHY

Basing my work on the theory of hyperthyroidism in Graves' disease, it seemed plausible that, if by some means one could produce atrophy of the gland and thus a diminished number of secreting cells, there would be a resulting diminution of secretion and consequent alleviation or cure of the hyperthyreosis. By resection of gland, this is at once accomplished; the operation, however, except in the hands of the very expert, is quite dangerous. Therefore, if by some less radical method, one could obtain the same results, this would, of course, materially lessen the operative danger.

Thus I reasoned that by application of a purse-string around the periphery of the gland, as in Figure 1, with subsequent tightening of the same (Fig. 2), or by introduction of multiple ligatures through gland substance, that this would cause atrophy of gland, not only by the resulting diminished blood supply, but also by direct intraglandular pressure.

One of the chief dangers following operations in Graves' disease is the supposed direct absorption of thyroid secretion from lacerated gland tissue.

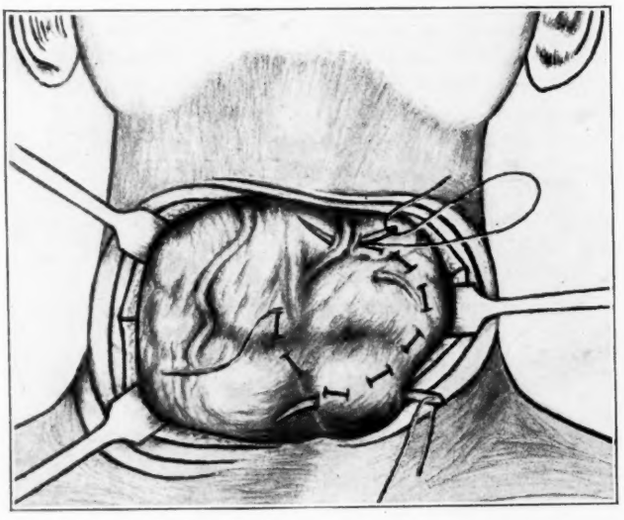

Fig. 1.—Introduction of purse-string suture and tying of inferior thyroid artery through gland substance.

Now, this compression of the organ following tightening of the purse-string would apparently bring about an immediate increased absorption of gland products, but, as one of the main factors of absorption is increased circulation, and in this case the circulation is greatly diminished, I think this danger is almost surely obviated. Working on the above principle, associated with James J. Moorhead, I performed a series of experiments on thirty-five dogs at the physiologic laboratory of the University of Chicago. We operated in groups of three to twenty. The different operations were done as follows:

In the first group (of twenty dogs), tying of the thyroid vessels through gland substance and purse-string compression was done; in the second group, purse-string only; in the third group, purse-string and tying of the superior thyroid; in the fourth group, purse-string and tying of superior vein, and in the fifth group, purse-string and tying of both artery and vein.

OPERATIVE TECHNIC

In dogs I found it preferable to make a vertical median incision. Through this opening, both of the glands may be easily delivered, one at a time. In the one human case, I made the transverse incision and the gland was not moved out of its bed at all. The operation proper consists of the introduction of one or more purse-strings along the periphery of the gland with subsequent tightening of these ligatures. I have used No. 3 chromicized catgut threaded on a curved non-cutting needle.

The preliminary tying of vessels was done, in the majority of cases, through the gland substance, as in Figure 1, taking a suture right through the pole. In the others, the vessels were tied just outside the gland.

In desperate cases, in which only vessels are to be tied, I would suggest that it be done in the manner described above, as the tying of vessels outside of the gland requires quite a handling of the gland, and is said by many experienced operators to be almost as dangerous as a resection.

The purse-string ligature is applied by sewing through the capsule and deep into the parenchyma, carefully avoiding the superficial vessels. Should a vessel be punctured, however, the hemorrhage is very readily checked when the purse-string is tightened.

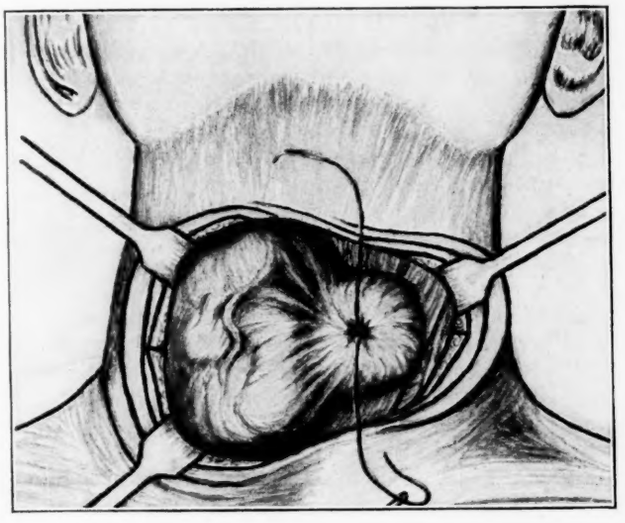

Fig. 2.—Tightened purse-string suture.

The results in all the operations were uniform; the glands sometimes becoming greatly reduced in size and remaining small at least until six months after the operation, that being the longest time we kept dogs for observation. This difference in size of the two glands, those operated on and those not operated on, is shown in Figures 3 and 4; in the latter the glands are shown *in situ*.

In no case did I have gangrene, although I specially tried to produce that condition by excessive tightening of the ligature.

In some of the dogs, there was a more or less marked postoperative lymphatic edema, which gradually disappeared in a few days.

In two dogs, this edema was very excessive, the entire head and neck becoming greatly swollen.

In each case only one gland was operated on; as a rule the larger was selected; the other left for comparison.

The gland on which no operation was done—and this is especially interesting—instead of enlarging, as one would naturally suppose, atrophied in almost all the cases, and in some quite markedly.

In my human case, this reduction in size of the unoperated gland has been most marked and so rapid that

two weeks after the operation[3] it can not be definitely palpated, although before the operation it was distinctly seen quite a distance outside of the sternocleidomastoid.

In autopsies on dogs, specimens were taken from both glands and compared.

In most of the cases, there was quite a change; in a few, however, there was no appreciable difference microscopically. In some of the cases the columnar epithelium of the vesicles changed to the cuboidal type and the papillary vesicular ingrowths seemed somewhat decreased in size.

REPORT OF CASE

Patient.—This woman had manifested the ordinary symptoms of Graves' diseases since last September. Before entrance to the hospital her pulse ranged from 120 to 140. The patient had occasional attacks of delirium cordis and her tremor was so intense that she could not at times perform her ordinary housework. After having rested in the hospital for a week the pulse averaged about 100, but came down as low as 90.

Operation.—At the time of the operation the pulse rose to 160, but it was not the rapidity as much as the alarming irregularity that almost made me take the patient off the table without operating. I cut in, however, intending to do a Ferguson operation, but she did so poorly under anesthesia that I changed my mind and rapidly tied the vessels of the right lobe through both poles and followed this by two purse-strings. The gland was not moved out of its bed at all. The time of operation was less than twenty minutes. During operation the patient was stimulated by salt solution administered hypodermically and per rectum and by other measures.

Fig. 3.—Thyroid glands removed from dogs some months after operation, showing difference between glands operated on and those not operated on. The small glands to the right are the ones operated on.

Postoperative History.—The immediate result has been above all expectations. Next day the pulse came down to 90; the maximum rate was 120. On the following day it averaged 110; on the fifth day the pulse at one time came down to 70. From that day the patient was out of bed. Since the fourth there has been no irregularity of the pulse. Two weeks after the operation it ran between 80 and 90, and the patient said she felt generally better than she had done at any time for the last year.

Blood Examination.—In this case the blood findings are very interesting, as, except for a leucocytosis, they correspond closely to Kocher's findings in these cases.

Fig. 4.—Specimen taken six months after operation, showing differences between glands operated on and not operated on.

BEFORE OPERATION

Polymorphonuclear leucocytes	40%
Large mononuclear	10%
Small lymphocytes	45%
Eosinophiles	4%
Myelocytes	1%
	100%

Erythrocytes	4,000,000
Leucocytes	14,000
Hemoglobin	95%
Color index	1 1/6

Some poikilocytes; some macrocytes.

Note the pronounced lymphocytosis (55 per cent.) and the low polymorphonuclear count (40 per cent).

There is also a slight eosinophilia.

AFTER OPERATION

Blood was examined every other day and it was interesting to see a gradual step-like change towards the normal.

Seventh Day—

Polymorphonuclear	63%
Large mononuclear	5%
Small lymphocytes	27%
Eosinophiles	1%
Neutrophiles	1%
Myelocytes	3%
	100%

3. The patient was exhibited two weeks after the operation before the Chicago Medical Society.

Erythrocytes	4,200,000	
Leucocytes	14,000	
Hb	95%	
Some malformed erythrocytes.		
Fourteenth Day—		
Polymorphonuclear		70%
Large mononuclear		5%
Small lymphocytes		20%
Eosinophiles		2%
Neutrophiles		3%
Myelocytes		0%
		100%
Erythrocytes	4,500,000	
Leucocytes	9,000	
Hb	95%	

CONCLUSIONS

A. DRAWN FROM LOOKING OVER THE LITERATURE

1. In spite of the enormous amount of work done on the gland, we are still only in the outer trenches of the thyroid citadel.
2. The whole subject, as it is now presented to us, is a mysterious labyrinth of opposing factors.
3. Thyroid is essential to the well-being of the organism, but not to life.
4. The gland contains iodin.
5. The removal of the gland causes marked metabolic disturbances.
6. Tetany is not due to removal of the thyroid.
7. Iodin seems to have some relation to the physiologic activity of the gland.
8. Iodothyrin may contain the active principle of the gland.
9. There is possibly an internal secretion.
10. The gland may have some action on the cardiovascular system.
11. Thyroid may have a detoxicating function.
12. It may have some relation to other ductless glands.
13. It is seemingly functionally independent of the parathyroid.
14. Graves' disease is probably due to hypersecretion of thyroid.
15. Basedow-like symptoms have been produced by overdosing the system with thyroid products.
16. Transplantation has so far been unsatisfactory.
17. The blood picture in Graves' disease may be pathognomonic and also prognostic.
18. There is probably a distinct pathologic picture in Graves' disease.
19. A great deal of splendid research work is being done in this country.

B. DRAWN FROM MY OWN WORK

1. The thyroid gland of dogs may be caused to atrophy by the method described above.
2. The gland which is not operated on also becomes reduced in size in the majority of cases (probably in all).
3. Goiter lymph in dogs probably has some special importance.
4. Some of the goiter dogs exhibit the pathologic picture of Graves' disease in man, but the symptomatic phenomena of human myxedema.
5. A high percentage of Chicago stray dogs have goiter (43 per cent., probably more).
6. Goiter dogs are very susceptible to anesthesia.
7. The operation may be done in the human being without disturbing the gland in its bed.

So far I make absolutely no claim as to the utility of the operation in the human being, but I can not help but think that, in desperate cases, this quick tying of the vessel with an additional purse-string will pave the way for a more radical operation later, if that should be necessary.

I also take occasion to thank Drs. Moorhead, Karlson, Matthews and Miss Edyth Danielson for valuable assistance.

1144 West Garfield Boulevard.

UNDERDEVELOPED LOWER JAW, WITH LIMITED EXCURSION

REPORT OF TWO CASES WITH OPERATION

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ST. LOUIS

My reasons for reporting the two following cases are, first, that one of them is, as far as I know, unique in its pathology, and the other presented a degree of deformity that is extremely rare; and, second, that the procedures resorted to for their relief have, as far as I know, never before been employed or suggested except by myself.

CASE 1.—*Patient.*—A young woman, referred to me by Dr. C. Dewitt Lukens, who gave the following history: When five years of age she was crushed under a falling bale of hay, was generally injured, remained unconscious for forty-eight hours, but made a good immediate recovery. Between the ages of 11 and 12 years it was noticed that she could not open her mouth freely, and on examination it was found that the excursion of the lower jaw was limited. From that time on it was noticed that the chin became relatively more receding and the downward excursion of the lower jaw lessened.

When she consulted me the patient was 21 years old, delicate and very thin. The mandible was undeveloped and the downward excursion was limited to the extent that the greatest possible vertical opening between the upper and the lower incisor teeth was one-eighth of an inch. Owing to the receding jaw, the lower incisors were one-fourth inch behind the upper, which with the one-eighth opening gave a possible feeding space. I thought that probably the lack of development was related to the early injury, but this did not explain the limited movement, which presented the following peculiarities: The movement was free until the opening between the incisor teeth was one-eighth of an inch and then stopped suddenly. During this movement the right condyle traveled forward as much as it would do in normal full opening of the mouth. The left remained apparently stationary and the chin moved to the left more than it did downward. A poor *x*-ray taken at the time failed to throw light on this point, but I figured out that some obstruction impinging on the dorsal part of the right ramus of the jaw near the angle could cause just that movement by transferring the center of motion on that side from the center of the ramus to the angle. The indications here were to give a free opening of the mouth, to establish a normal occlusion of the teeth and to improve the profile by carrying the chin forward and holding it there. Granting that my idea of the obstruction was correct, all of these things would be accomplished by the operation for receding jaw which I have described elsewhere.[1]

Operation.—At St. Luke's Hospital, on Nov. 8, 1905, under ether an incision of five-eighths of an inch was made in front of the lobe of each ear, the parotid gland turned back, a curved needle passed under the ramus and out through the cheek and a Gigli saw introduced, the soft structures protected and the ramus cut through on both sides. Owing to an abnormality of the ramus on the left side the mucous membrane of the mouth

1. Surg., Gynec. and Obst., January, 1907; Dental Era, April, 1907.

Fig. 1.—Full face of Patient 1 before operation. Notice the lateral position of the chin.

Fig. 3.—Full face of Patient 1 after operation; lateral malposition of chin corrected.

Fig. 2.—Profile of Patient 1 before operation.

Fig. 4.—Profile of Patient 1 after operation. Notice the change in the relative position of lips resulting from the new position of the body of the lower jaw.

Fig. 5.

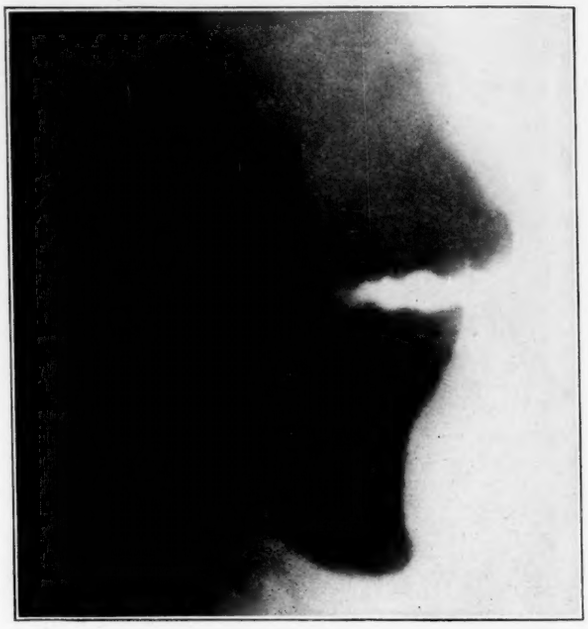

Fig. 7.

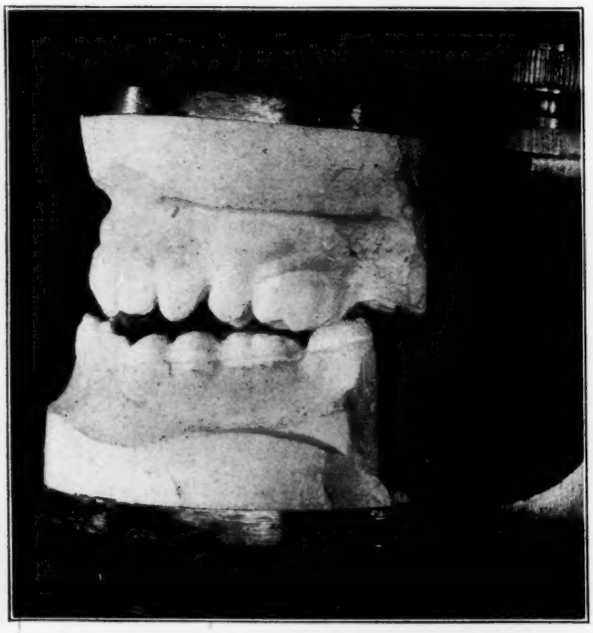

Fig. 6.

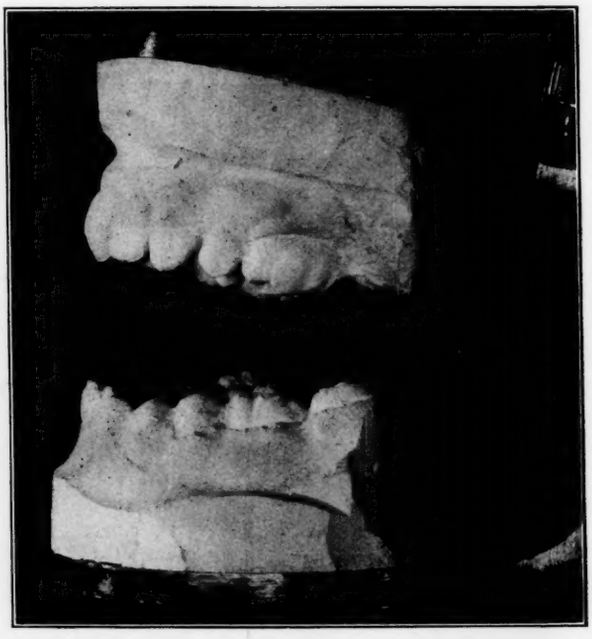

Fig. 8.

Figs. 5, 6, 7, 8.—Closure and possible opening in Case 1 before and after operation. Comparing Figure 5 with 7 it will be appreciated how much the lower jaw has been brought forward. Comparing Figure 6 with 8 the increase in the possible opening can be measured. Before operation the possible opening was one-eighth of an inch; a year after operation it was, as stated, seven-eighths of an inch. Since then there has been a contraction of the bone scars which has reduced the opening to five-eighths of an inch, but it will contract no more. The cast showing the present condition was taken this year by Dr. J. L. Newborn of Memphis, Tenn.

Fig. 9.—Profile of Patient 2 before operation.

Fig. 11.—Profile of Patient 2 after operation. Owing to their red color at the time of being photographed, the prominence of the scars on the cheek and under the chin is exaggerated by the camera. Later, when the red color fades, the scars will be practically invisible. The change in coiffure in both cases is in conformity with the mode.

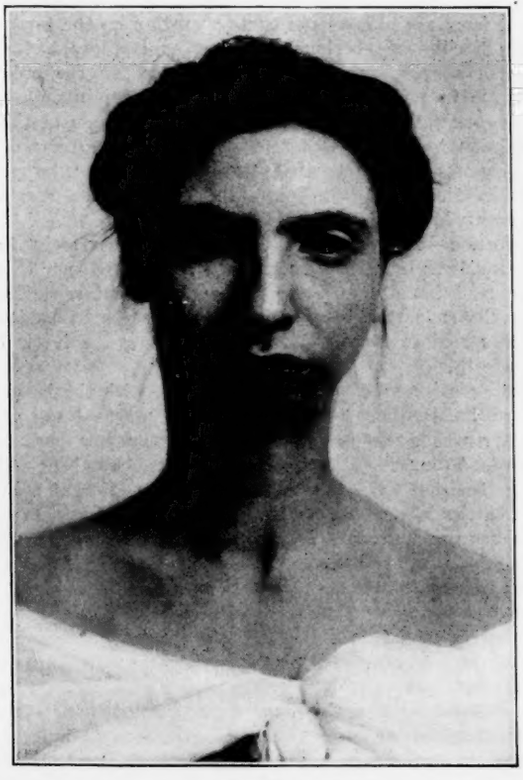

Fig. 10.—Full face of Patient 2 before operation.

Fig. 12.—Full face of Patient 2 after operation. The happier expression about the eyes is one of the results in this operation.

was pierced by the needle and we had an infected wound on that side which later caused a temporary paralysis of the upper branches of the seventh nerve, but this cleared up in about four weeks. The wounds were packed, the muscles of mastication stretched, the body of jaw brought forward until the lower incisors were a little in front of the uppers and the chin symmetrically placed. It was wired in this position.

Postoperative History.—The packing was removed from the face wounds on the third day. The right one was closed with a suture that had been previously placed and the left dressed open. The paralysis on the left side appeared on the second day, but cleared up as previously stated. The patient left the hospital November 18, ten days after operation. In four weeks the union was examined and found not to be strong, so the teeth were rewired for eight weeks more. Later Dr. Lukens,

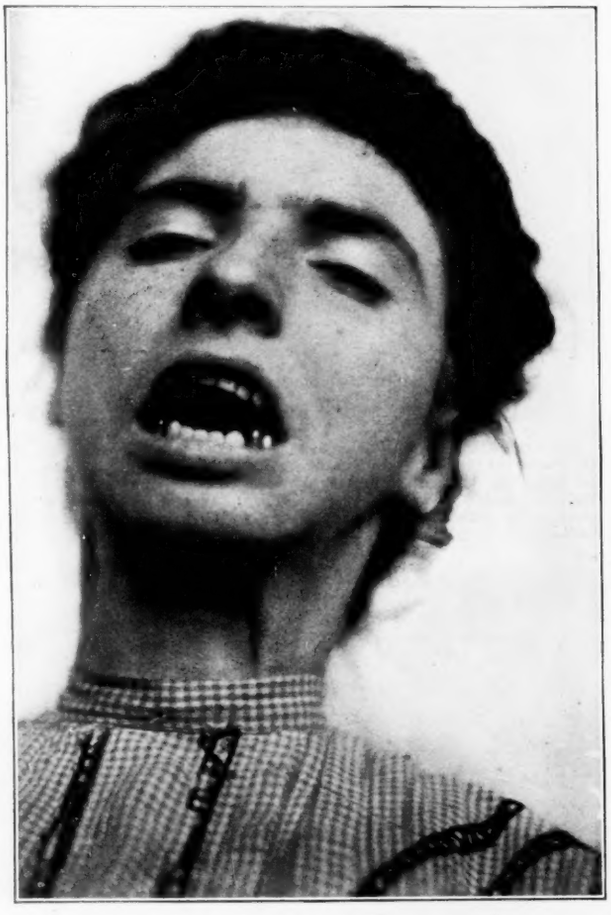

Fig. 13.—Possible opening in Case 2, the artificial dentures, and the crowned bicuspids. The strain of the platysma was the result of the desire to have the mouth open as fully as possible, but it was unnecessary and did not contribute to the result as the mouth opens with perfect freedom till the limit is reached. The artificial incisors are so placed that they do not quite occlude.

by orthodontic operations, brought the teeth into more perfect occlusion. In removing the wires from the teeth it was found as expected, but, nevertheless to my relief, that the mouth opened freely one-half inch and that the limit of movement was in the soft structures. When examined a year later it was found that lateral movement was normal and the possible opening between the incisors was seven-eighths of an inch, which is more than is necessary for good function. As mentioned in the articles already referred to, bringing forward the body of an undeveloped mandible does not entirely correct the obliquity of the chin, I proposed, by further operative procedure, to construct a mention eminence, but the patient expressed herself as well satisfied with her results.

The peculiarity of this case was the limit of excursion of the mandible, which was due, as demonstrated later by a good *x*-ray taken after the operation by Dr. H. P. Wells, to the fact that the styloid process on the right side was the size of my little finger and abutted against the inner side of the angle of the jaw, which corresponds with my original deduction. By moving the body forward a space was obtained between the angle and the styloid process which gave room for the angle to travel backward during normal movement. The other results are a symmetrical chin, an improved profile, good health and mental relief. The patient's own brother did not recognize her when she returned home and within a few months she gained twenty-eight pounds over her previous weight which she has retained. She has been in good health ever since, which was not the case before, and she seems very happy. Removal or fracture of the abnormal styloid would give a freer opening, but the patient does not feel the need. She had been seeking relief for some years before I saw her, and, including the members present at medical and dental associations before which, at the request of her dentist, she had appeared seeking advice, she had been seen by a large number of men of both professions.

The photographs of this patient and the next (Figs. 1 to 4 and 9 to 12) are unretouched and show the exact condition of features, but exaggerate the color of recent scars.

CASE 2.—*Patient.*—A girl, aged 23, who came to my clinic at the dental department of the Washington University. She had had scarlet fever at the age of 2, with a suppuration behind each ear, probably mastoid. At 6 the opening of the mouth was noticed to be limited and some attempt at stretching with wedges was made. At 9 the opening was very limited and at 15 some lower incisors were removed to allow her to take solid food.

Examination.—In January, 1908, the patient presented herself at the clinic with this condition: She was rather thin, with suppuration of both middle ears, scars from old cervical abscesses, a fair percentage of sugar in the urine. The facial contour was as shown in Figures 9 and 10. There was absolutely no visible excursion of the lower jaw, which was in an extreme degree of underdevelopment. The canines and remaining incisors of the lower jaw protruded straight forward and held the lower lip in the position shown in Figure 9.

The indications here were to improve the general health, including the ear condition, establish a joint on each side, draw the body of the jaw forward and hold it there. On strict diet, under the care of Dr. Walter Baumgarten, the sugar disappeared from the urine. The same operation on the jaw was indicated as in the previous case, but as here we had also to establish a joint on each side, I proposed to the patient to allow me to transplant the interphalangeal joints of one toe to the spaces I would leave between the cut ends of the bone. Permission to do this was refused and I was afterward glad, as every wound but one that I ever made on her suppurated. The operation was done before the class at the Washington University Hospital on Feb. 11, 1908.

Operation.—After sawing the ramus transversely in this case, and bringing the body forward as far as I could hope to retain it, I found that there was such a great separation between the ends that bony union would not be probable. The jaw was held in its new position by wiring the lower to the upper teeth.

Postoperative Treatment.—In this case, with the large space between the cut bone ends, it seemed to me that the greatest difficulty was going to be in retaining the jaw permanently forward. To meet this I determined to keep the bone wired in its new position for a considerable time and later, if necessary, establish the joints. On April 26, on account of evident illness, the mouth was unwired. I found a considerable degree of opening, sufficient to make out a diphtheria of the pharynx. On recovery the patient returned to the clinic and I found the jaw forward in its new position with an excursion that allowed of an opening of the mouth that was three-sixteenths between the bicuspids and limited by soft structures. Attempts at instrumental dilatation with and without anesthetics were unsuccessful and I hit on the plan of inserting pieces of laminaria uterine tent between the teeth and allowing them to remain over night, which was so successful both in the lack of pain and in the result that I consider it a distinct advance over the methods ordinarily used for this purpose.

Result.—We now had the patient's jaw forward and she could open her mouth sufficiently for function, but, owing to the obliquity of the mental portion, the facial outline was still far from what was desired. The correction of this was a problem about which I had been thinking for some years. Three possible methods presented themselves to me: First, paraffin injection into the soft structures, which I dismissed early in the consideration; second, an osteoplastic resection to tilt forward a piece of the chin bone and fill in the space behind with a paraffin iodoform mixture, or silver frame and blood clot; and, third, the transplantation of cartilage. I finally settled on the latter procedure.

Second Operation.—On September 1, at the Washington University Hospital, under ether given through tubes introduced through the nose into the pharynx after the method of Crile, the mouth was packed and a cloth was sewed across the face below the mouth to prevent contamination from the mouth. The curved part of the eighth costal cartilage with its perichondrium was dissected loose and for temporary protection was left in its original position. Then a transverse cut to the bone was made in the crease under the chin and all the structures covering the front of the mental part of the mandible, including the periosteum, were dissected upward in one flap. The curved piece of cartilage one and a half inches long was laid on the bare bone and, after wiring it there, the flap of soft tissue, including periosteum, was replaced, and a very respectable chin resulted.

Postoperative History.—The whole wound suppurated, but I did not remove the sutures, and for days pus in large quantities poured out between them. Later the suppuration became less, and from local symptoms and appearance I came to the conclusion that the infection had occurred between the perichondrium and bone, which was a dead space, but not between perichondrium and the periosteum. Some sinuses persisted which healed nicely after the wires were removed and the sinuses had been injected with a paste of subiodid and subnitrate of bismuth and petrolatum, which is a slight modification of the plan introduced by Beck of Chicago for chronic sinuses. Later the *x*-ray demonstrated the bismuth in the space between the cartilage and bone. I preserved the perichondrium because it is in normal relation on the one hand with the cartilage and on the other with the soft structures; I thought that the leucocytes would be less likely to regard the covered cartilage as a foreign body, and that the nourishment of the cartilage would be preserved. I turned up the periosteum and buried the cartilage under it, because I thought that if I did loose the cartilage it might stay long enough to hold the periosteum in its new position until it had formed a shell of bone. Here I seem to have calculated badly, for the subsequent *x*-rays show no effort at bone formation on the part of the reflected periosteum. To my mind, the most remarkable thing in the whole procedure is that the cartilage did stay in place after suppuration occurred. The scar is linear and hidden well under the chin. The anatomic operative results in this case are the facial outline shown in Figures 11 and 12, a very fair occlusion of the natural teeth that have been preserved, and false joints that permit an up-and-down excursion of the lower jaw, which is limited by soft structures and which is increasing while a lateral movement is developing. A slight amount of the movement on the right side is in the temporomandibular joint, which seems to have been restored by the dilation with tents.

Dental Operations.—Dr. LeGrand Cox, who is associated with me in that clinic and who assisted me all through with this case, removed the upper incisors to allow the lip to retract and the remaining lower incisors and cuspids on account of their extreme malposition. He also crowned the lower bicuspids to bring them up to occlusion. The prosthetic work which shows in Figure 13 was done by Dr. F. A. Niehoff, who has charge of that laboratory, and it and the casts do great credit to his skill and patience. The treatment extended over a year and the patient's circumstances were such that much of the time she was, by the courtesy of the dean, in the hospital at the expense of the dental department. Since the movement of the jaw has been restored and the teeth have been replaced, on ordinary general diet, the sugar in the urine has disappeared. When the patient first presented herself, and all through the first months of treatment whenever she got out of the hospital and on general diet, it ran very high. This disappearance of sugar is possibly one result of the improved digestion, metabolism and spirits which have followed the operation.

Metropolitan Building.

GALVANOCAUTERY PUNCTURE IN ECTROPION AND ENTROPION *

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PHILADELPHIA

Ectropion and entropion, of mild degree, whether from interstitial shrinkage or from moderate cicatricial contracture, are so inefficiently remedied by our present operative measures that I have thought it desirable to present to the profession a simple procedure I have used for many years and from which I have never yet failed to secure the desired results.

There are many conditions which we can relieve by this procedure:

A. Spastic entropion or ectropion.
B. Senile or relaxed ectropion or entropion.
C. Paralytic ectropion.

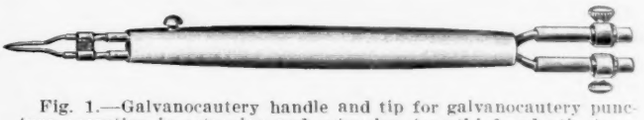

Fig. 1.—Galvanocautery handle and tip for galvanocautery puncture operation in ectropion and entropion (one-third reduction).

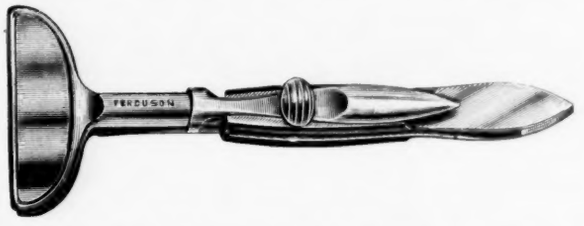

Fig. 2.—Ziegler's lid clamp for use in galvanocautery puncture of the eyelids either on conjunctival or skin surface.

D. Contraction from lachrymal irritation.
E. Moderate cicatricial contraction.
F. Small cicatricial distortions or dimplings.
G. Cases of distichiasis.

Many varieties of suture operations have been employed to relieve these conditions, but, while successful in some instances, they are quite inefficient in the larger proportion of cases.

The plastic operations often leave a scar, which is more disfiguring than the original lesion, and is, therefore, distasteful alike to both patient and surgeon.

The use of flexible collodion has proved of some value in spastic entropion following operations requiring the use of a compress bandage. A few galvanocautery punctures, however, will prove far more efficient in relieving this class of cases.

INSTRUMENTS

The method I desire to propose requires but two instruments, a short galvanocautery point (Fig. 1), and a lid clamp (Fig. 2). The galvanocautery point should

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

be short, rather thick and sharpened at the point so that it will puncture quickly. This avoids scarring. The lid clamp is a modification of my chalazion clamp, having a straight edge, which is a perfect guide for the row of punctures. It is made with a sliding catch, instead of the Desmarres screw, which facilitates placing it in position. The clamp makes a bloodless operation, and, to a certain degree, benumbs the tissues and so lessens the pain. If no clamp is available, the ordinary Snellen lid spatula may be slipped under the lid and the margin of the lid held flat by the fixation forceps or by a double lid hook, in cases of entropion. The same method may be reversed in ectropion, the lid spatula being placed outside on the skin surface, and the margin drawn away from the eye by the forceps or lid hook, which is then turned back flat over the lid spatula.

ANESTHESIA

I usually employ nothing but a 4 per cent. solution of cocain on the conjunctival surface, the pressure of the clamp causing some anesthesia. The patient may wince a little because of the glow of the cautery, the slight smoke and the momentary noise of sizzling or frying flesh, but ordinarily very little complaint is made.

In nervous, sensitive patients deeper anesthesia is required. Hypodermic injections of cocain under the skin, or conjunctiva will often increase the local anesthesia. In entropion the skin of the lid may be slighty frozen by a spray of ethyl chlorid. In the majority of cases, however, it will be necessary to employ nitrous oxid, bromid of ethyl, chloroform or ether. If ether is used it must be removed before the approach of the hot cautery point or an explosion will naturally occur.

DESCRIPTION OF OPERATION

The lid clamp is adjusted with its straight bar 6 mm. from the lid margin (Figs. 3 and 4). The galvanocautery point is applied to the surface with considerable pressure, the button on the handle is pressed down to turn on the current, while the point is quickly pushed through the cartilage and as quickly withdrawn. The punctures are made 4 mm. from the lid margin, and separated from each other by an equal interval of 4 mm. These should be made on the side on which we wish the contraction to take place, viz., the conjunctival surface in ectropion, and the skin surface in entropion. If necessary, we can repeat the procedure in a few weeks. From one to three sittings will accomplish as much as a plastic operation would do.

This procedure possesses the double advantage of causing vertical contraction of the relaxed lid, and at the same time producing shrinkage and shortening of the redundant length of the lid, thus restoring the lid to its normal position.

POSTOPERATIVE REACTION

I have seldom seen any reaction. If, however, there should be cellulitis and puffing of the lid, the application of continuous ice pads for a day or two will control this condition. I have seen one case (see Case 10) infected by the discharge of a purulent dacryocystitis. I controlled this by wrapping a small wisp of cotton on a wire applicator, dipping it into a 1 per cent. formalin solution, and twirling it around slowly in each puncture. This application was made for three successive days, in addition to the ice padding, when all signs of sloughing disappeared and healing occurred without a scar. Every case, of course, exhibits the charred eschar of the cautery but this causes no disturbance and usually clears off in about a week.

Fig. 3.—Lid clamp adjusted to case of ectropion, showing row of galvanocautery punctures on conjunctival surface.

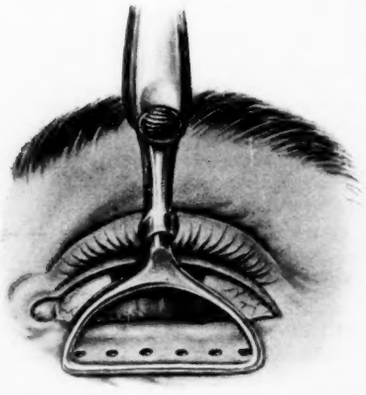

Fig. 4.—Lid clamp adjusted to case of entropion, showing row of galvanocautery punctures on skin surface.

Fig. 5. (Case 3).—Spastic ectropion following cataract extraction.

REPETITION OF THE PUNCTURE

If the result is not immediate it may be necessary to repeat the operation two or three times at intervals of from two to four weeks, depending entirely on the amount of incurvation or turning to be overcome. As the procedure is under perfect control, the judgment of the operator can easily determine the number of punctures necessary to attain the desired result. In cases requiring repetition it will be better to make the punctures alternate, locating the second series between the first series.

REPORT OF CASES

I desire to relate briefly a sufficient number of cases properly to illustrate the lesions under consideration and to demonstrate the value of the galvanocautery procedure. The majority of these cases were treated at the Wills Eye Hospital, while a few were seen at the St. Joseph's Hospital or in private. I regret that more

photographs of the patients were not taken in order to show more especially the results of the operation.

CASE 1. C. S. P., aged 75, suffered from senile or relaxed ectropion of lower lid, O. S., with lachrymal obstruction.

Oct. 9, 1898: Rapid dilatation, O. S.

Dec. 11, 1898: Galvanocautery puncture of conjunctival surface, lower lid, O. S.

Jan. 8, 1899: Galvanocautery puncture, O. S., repeated.

Feb. 1, 1899: Final galvanocautery puncture, O. S., which was followed by prompt and complete recovery.

CASE 2. W. T., aged 29, ectropion of lower lid from lachrymal irritation; obstruction of tear duct.

Nov. 1, 1905: Galvanocautery puncture of lower lid, O. D., and rapid dilatation of tear duct.

Dec. 9, 1905: Galvanocautery puncture, O. D., repeated.

Recovery was prompt and complete.

CASE 3. J. B., aged 66, developed senile or relaxed ectropion of the lower lid, O. S., after cataract operation. This was spastic in character.

Dec. 9, 1905: Galvanocautery puncture, O. S., followed by rapid recovery which has been permanent. The original condition is well shown in the cut, Figure 5.

CASE 4. T. R., aged 42, ectropion of lower lid with lachrymal obstruction, blepharitis and epiphora, O. S.

Jan. 3, 1906: Galvanocautery puncture, O. S., followed by Stilling's operation and insertion of lead style. The recovery was prompt and complete.

CASE 5. F. T., aged 46, cicatricial entropion of lower lid, O. S., following burn by acid, which also occluded the tear duct.

Jan. 11, 1906: Stilling's operation with lead style O. S.

Jan. 17, 1906: Galvanocautery, puncture, O. S., which drew the lid out to its normal position, the convalescence being very rapid.

CASE 6. W. H. B., aged 48, ectropion of lower lid, O. S., from lachrymal irritation, with occlusion of tear duct.

May 14, 1906: Galvanocautery puncture, O. S.

May 29, 1906: Puncture repeated.

June 25, 1906: Rapid dilatation of the tear duct, O. S. Figure 6 shows the condition before operation, May, 1906,

Fig. 8 (Case 13).—Entropion and trichiasis before operation.

Fig. 9 (Case 14).—Congenital entropion before operation.

while Figure 7 represents the condition two years later, showing that the result has been complete and permanent.

CASE 7. C. H. A., aged 35, O. D. was injured by molten metal and enucleated. The patient had relaxed ectropion of lower lid, O. D., with shallow socket.

May 27, 1907: Galvanocautery puncture, O. D., conjunctival surface.

Nov. 4, 1907: Galvanocautery puncture repeated, which brought lid into good position for wearing an artificial eye.

CASE 8. A. L., aged 33, entropion with trichiasis and lachrymal obstruction.

Nov. 1, 1907: Rapid dilatation, O^2.

Nov. 11, 1907: External canthotomy, O^2.

Nov. 22, 1907: Galvanocautery puncture of skin surface, which relieved the entropion and trichiasis.

CASE 9. D. S., aged 75, entropion with trichiasis of both lids, O^2, the sequela of trachoma; lachrymal discharge with pannus, xerosis of conjunctiva.

Nov. 11, 1907: Galvanocautery puncture of skin surface, O^2.

Fig. 6 (Case 6).—Ectropion from lachrymal irritation.

Fig. 7 (Case 6).—The same patient two years after operation.

Dec. 18, 1907: Galvanocautery puncture, O^2, which so completely corrected the entropion and trichiasis that I was able to do a combined cataract extraction in O. S. two months later.

CASE 10. T. T., aged 55, had both eyes burned by an explosion thirty years before the time of operation; had entropion, trichiasis, dacryocystitis and pannus in both eyes; also had traumatic pterygium, O^2, with cicatricial bands in O. D., which held the eye in a divergent position.

April 1, 1908: Pterygium excised; Stilling's operation with lead style in both eyes.

April 6, 1908: Galvanocautery of skin surface for entropion of upper lid, O^2.

April 22, 1908: Division of cicatricial bands of upper lid by galvanocautery incision, O. D., which freed the eye from its divergent strabismus.

April 24, 1908: Galvanocautery puncture repeated in both eyes.

May 8, 1908: Galvanocautery puncture repeated, followed by infection from dacryocystitis, which was controlled by applications of 1 per cent. formalin solution, and ice padding. This is the only case of infection I have noted.

The ultimate result of these various procedures was excellent, and the patient was discharged greatly improved in appearance, with better vision and greater comfort than he had enjoyed for many years.

CASE 11. S. M., aged 67, has marked senile ectropion of lower lid with blepharospasm, O. D., dating back one year.

April 24, 1908: Galvanocautery puncture, O. D., conjunctival surface.

May 1, 1908: Galvanocautery puncture, O. D., repeated.

May 13, 1908: Galvanocautery puncture, O. D., the final result being a restoration of the lid to its normal position with relief of the blepharospasm.

CASE 12. W. W. G., aged 49, spastic entropion of lower lid, O. S., with lachrymal obstruction and ulcerative keratitis.

May 28, 1908: Galvanocautery puncture of lower lid, O. S., with rapid dilatation of the tear duct. The convalescence was prompt and complete.

CASE 13. Miss E. G., aged 34, suffering from entropion and trichiasis of upper lid, O. S., for many years.

June 10, 1908: Galvanocautery puncture for entropion of upper lid, O. S.

June 24, 1908: Operation repeated.

Figure 8 shows the condition prior to operation. The result was excellent but, unfortunately, the patient was discharged from the hospital without securing a photograph showing the final condition.

CASE 14. Miss R. G., aged 9, congenital entropion of both lids of each eye, with complete inversion of eyelashes; lachrymal obstruction.

Feb. 17, 1908: Rapid dilatation of both tear ducts.

May 25, 1908: Galvanocautery puncture of both lids, O^2.

June 29, 1908: Operation repeated on both eyes. Marked improvement.

July 8, 1908: Final puncture, which was followed by complete relief. Examination of the patient on March 8, 1909, showed that the result was permanent.

Figure 9 represents the condition before operation.

1625 Walnut Street.

ABSTRACT OF DISCUSSION

DR. S. D. RISLEY, Philadelphia: Any surgeon who has experienced the difficulties and uncertain results following the adoption of any of the usual surgical procedures for the correction of ectropion or entropion will, I am sure, appreciate the simple method set forth in Dr. Ziegler's paper. The author has courteously afforded me the opportunity to see some of his cases. The admirable results led me to adopt the procedure in a man aged 68, who for a long time had suffered from entropion of both lower eyelids. A 4 per cent. solution of cocain was instilled, the entropion was temporarily corrected by rolling the lashes outward through traction on the skin of the lid and a broad metal spatula was introduced into the conjunctival cul-de-sac. Pressing this forward drew the lid tight and held it firmly. Four galvanocautery punctures were then made as described by Dr. Ziegler. A week later the second eye was operated on in the same manner. The entropion in each eye was immediately and permanently corrected. In each a coating of collodion was spread over the punctures and the man was allowed to return to his home. There was no noticeable reaction and no scar. The immediate and perfect correction of the trouble were not only entirely satisfactory to both patient and surgeon, but afforded a rarely striking and brilliant result from a procedure of great simplicity. The principle involved is the shortening of the lid along the lower border of the cartilage on the outer or skin side in entropion and on the conjunctival side in ectropion. The placing of the punctures in relation to the edge of the lid is therefore important.

DR. WILLIAM ZENTMAYER, Philadelphia: When a new operation such as this is proposed we should have accumulative evidence of its effects as soon as possible; therefore, I wish to report six cases of the Ziegler operation, all done for entropion, four of the spastic type and two with trichiasis. The immediate effect was most gratifying. In two instances, one of the spastic type, it was necessary to repeat the operation and not sufficient time has elapsed since to warrant a statement as to whether the result is now permanent. But as Dr. Ziegler has said, repetition of the operation is to be expected. I have always injected cocain into the lid before the operation and have had little complaint of pain. I do not know whether it is wise or not, but I have not even put a bandage on the eye. This is certainly an admirable procedure, in suitable cases.

DR. BARTON PITTS, St. Joseph, Mo.: In discussing the subject of entropion particularly, we must bear in mind that there are different conditions that bring about the inturning of the upper and lower lids, especially the lower. Twenty years ago, in my experimental stage of evolution, I tried the cautery method quite extensively. In my part of the country we have 50 per cent. more cases of entropion than in the East. Trachoma is exceedingly prevalent, the population being made up of a considerable foreign element. I have obtained satisfaction from the cautery in only a very small class of cases, of spasmodic or senile entropion of the lower lid. In these cases one can cauterize; take out a small strip of skin or paint with collodion and obtain a satisfactory result. Usually external canthotomy will afford permanent relief. There is no cauterization that will relieve entropion of the upper lid due to cicatricial contraction from trachoma, which constitutes 99 per cent. of such cases. In ectropion the operation of removing a V-shaped piece with the apex down at the external angle of the eye, and suturing it with one or two sutures has always proved effectual with me, except in cases with scar tissue due to injury or burns. Each of these cases must stand by itself. The operation for entropion most satisfactory to me is the Hotz operation combined with mucous transplantation from the lower lip.

DR. S. LEWIS ZIEGLER, Philadelphia: This particular instrument that I am showing was made for me by Luer, in Paris, but I am advised that the Keystone Electric Company, of Philadelphia, now has them ready. The cautery point I use is made very sharp on the end and then spreads out suddenly with quite a belly. One can, therefore, secure a good cautery effect and make the puncture very quickly thus getting heat without destruction of tissue. It should be borne in mind that you must not hold the hot cautery in the tissue too long, or there will be sloughing, as after any other cauterization. The other question, raised by Dr. Pitt I believe, was in relation to entropion after trachoma. Case 13, Figure 8, in my paper, shows a very marked case of entropion from trachoma of fifteen years' standing, that was relieved by this procedure. Unfortunately, no photograph of this patient was taken afterward. This operation is not supposed to take the place of all plastic operations on the lids, but is useful in eversions and inversions of moderate degree in which we do not care to do a plastic operation. It is also valuable in repairing or trimming up other plastic operations; in other words, if there is left some dimpling or distortion we can contract the lid on the inner or outer side, according to where the puncture is made. I do not think there is anything that I can add to the technic. It is very simple, and anyone who can use the galvanocautery can do it. So far as the after-treatment is concerned, I think any mild dressing will give the result. If one is afraid of puffing of the lid, ice pads may be put on for twenty-four hours. One can apply a bandage or leave the eye open. I seldom use any dressing, as the galvanocautery puncture should give no more reaction than the same puncture applied to a wart on the hand. I have illustrated the operation for convenience on the lower lid, but it works as well on either lid. The degree of anesthesia depends entirely on the individual patient and should be controlled by the circumstances.

TENOTOMY OR ADVANCEMENT *

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When Dieffenbach and his contemporaries began to operate for heterotropia they always divided the tendon of the muscle, or even the muscle itself toward which the eye turned. Naturally many of these eyes soon turned quite as far out of place in the opposite direction. Then operations for advancement were attempted, although at first only in a crude form. During the three-quarters of a century since that time ophthalmologists have differed in their opinions as to when to make tenotomy and when advancement. We have the important fact that thousands of eyes have been satisfactorily straightened by tenotomy, and, on the other hand, we know the unsatisfactory results of this operation which come to even the best operators, and the theoretical reason for advancement—that it is always better to strengthen one muscle than to weaken its opponent. An examination of the literature seems to indicate that when some attractive form of tenotomy has been proposed, ophthalmologic opinion swung toward

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

that operation, or when another for advancement offered it swung toward that. Of late the tendency—in America, at least—seems to be in favor of advancement, in spite of the fact that this is by far the more difficult operation for the surgeon to make and the more uncomfortable for the patient to endure.

My object here is to recapitulate briefly the reasons for deciding in a given case on a tenotomy or an advancement. As exact definition is necessary to clear thinking, it should be stated that each of these terms is used here in its broadest sense. It is taken for granted that the tenotomy made in a given case is always the form of that operation then indicated, whether that be a partial, a simple, or a complete tenotomy; also that the proper form of advancement is always selected, whether that be advancement of the tendon alone or of the tendon with its capsule, it being far beyond the province of this paper to discuss at all the technic of either operation.

It should be noted also in what follows that the term "strabismus" is avoided, because that is so indefinite as to mean all forms of heterotropia and therefore no one form exactly.

Moreover, even the question of diagnosis here dealt with is presented with some hesitation, as a short chapter on this subject has been given recently in my second volume[1] on the muscles, and there is danger of repetition. But, according to the plan adopted in that book, it was not practicable to arrange the facts in the order which is possible here.

We shall probably all agree at once on the fundamental proposition that the operation selected should be the one which restores most completely the normal condition. Thus if the deviation of an eye is produced by the excessive action of a certain muscle or group of muscles, we are safe in lessening that excessive action by some form of tenotomy. On the other hand, if the deviation is produced by the insufficient action of a certain muscle or group of muscles, advancement is indicated. In other words, the decision in a given case between a tenotomy or an advancement depends on the question whether the deviation is due to an excessive action of the muscle or group of muscles toward which the eye turns, or to the insufficient action of the muscles or group of muscles away from which it turns.

For the sake of clearness we should remember that our cases of heterotropia really divide themselves into three great classes, each class having apparently several subdivisions—more or less well defined. We have long recognized the more obvious examples of each great class and treated them accordingly. Taking them in the order in which we began to separate them from each other, we recall the cases most easily recognized as those of paralysis or paresis or insufficient action (as we wish to call it) of one muscle or group of muscles. Sometimes the paralysis is apparent at a glance; sometimes it is necessary to have the patient look to the right, left, up or down, to assure ourselves that any paresis exists; while in still other patients that diagnosis can be made only after long and patient search. These we may well call cases of actual insufficient muscular action, and for them we agree that advancement would be indicated.

We should remember, however, that an abnormal condition of the opposite kind may also be observed; a spasm or excessive action (as we wish to call it) of one muscle or group of muscles. If the limits of this paper permitted, the diagnosis, frequency, etc., of these cases would be dwelt on, but I have recently tried to give a summary of our knowledge on that subject. It is only necessary here to observe that the largest and most typical group of this class comprise those to which Donders long ago called attention. The hypermetropes whose ciliary muscles were constantly in a state of excessive action, and with that came excessive action of the internal recti. These we may call cases of actual excessive muscular action, and for them most of us also agree that tenotomy would be indicated. Without doubt there are other groups of this class with excessive muscle action which still remain to be separated from the rest and carefully studied. This seems probable, at least in view of the thousands of good results blundered into after so-called tenotomies made in the most careless manner possible.

Between these two classes of deviations due only, on the one hand, to excessive, and, on the other, to insufficient action of a muscle or group of muscles, we have a third class, in which these two conditions exist in the same eye. Thus an esotropia very often results from excessive action of the internus, together with insufficient action of the externus. This is the rule in cases of long standing. My main point is simply this: In order to decide in a given case whether to make tenotomy or advancement we must know first of all the one group of muscles or because of the excessive action of another group, or because of both causes acting at once? If the last, which cause predominates? Minor questions are also involved in this decision, but they may be neglected for the present.

Moreover, for the present let us limit ourselves to deviations of the visual axes which occur in the horizontal plane; that is, to esotropia and exotropia. They will illustrate the principles involved. To be still more definite, let us imagine for a moment that we are dealing with a case of esotropia in a young person. In deciding a question like this it is necessary to obtain all of the evidence possible from different sources. These sources are:

A. The refraction, with the condition of the ciliary muscles.

B. The extent of the arc of rotation and the behavior of the eye, in rotating, as shown by the perimeter or tropometer or both.

C. The exact character of the arc of rotation as shown by photographic tracings.

D. The lifting power of the adductors and abductors as shown by the ophthalmodynamometer.

Let us consider these in order.

A. THE REFRACTION AND THE CONDITION OF THE CILIARY MUSCLES

The part which hypermetropia plays in esotropia has already been referred to and is too well known to require any elaboration here. It is the deviation inward which Galezowski and others have called functional strabismus. This is a good example of the cases in which the deviation inward is due to excessive action of the adductors. The treatment with convex glasses shows that we recognize this. When that is not sufficient, especially when one eye is amblyopic, then most operators are accustomed to make some form of tenotomy of the internus. Good results have followed in so many thousands of such cases that probably tenotomies will always

1. Howe: The Muscles of the Eye, New York, 1908, ii, 358.

be made for them, in spite of any theories in favor of advancement.

In a word, the condition of the refraction not only gives us a clue as to the diagnosis but also to the treatment.

B. EXTENT OF ARC OF ROTATION AND BEHAVIOR OF EYE IN ROTATING

Important evidence is furnished by the extent of the arc of rotation in and out, and by the behavior of the eye in moving through that arc. The limits of this paper will not permit a description of the form of perimeter or tropometer best suited for making these measurements. They have been described at length in the first volume on the muscles in the work already referred to. A more complete description of their varieties, and the advantages of different forms, are to be given in a

Ophthalmic dynamometer for measuring the lifting power of the horizontal recti

paper now in press, which will be presented at the meeting of the American Ophthalmological Society to be held in July and published in their transactions. At present it must be taken for granted that these forms of the perimeter and tropometer are well known.

It should be mentioned, however, that while the perimeter is very useful for measuring the extent of the arc of rotation outward, it is of no value in measuring that arc up or down, because of the obstruction to the axis of vision caused by the projection of the nose, brow or cheek. For the measurements of the arc of rotation in these three directions we must depend on some form of the tropometer. The form which I have described, that is, a tangent scale in the tube of the horizontal microscope, seems to serve the purpose as well as the more complicated instruments.

It should also be observed that the extent of the arc of rotation is by no means the only measure of the amount which the eye can turn in a given direction. I have already called attention to the fact, and must repeat again, that quite as much depends on the character of the rotation as on its extent. To say that an eye rotates outward, for example, 50 or 55 degrees, means but little. We must also know whether that rotation is a steady and uninterrupted swing, to a point at which the eye remains fixed as long as the individual desires, or whether, on the other hand, the eye swings out steadily only to 25 or 30 degrees, then begins to halt or vacillate, as it were, and, after reaching even the same point of rotation, to swing quickly back, in spite of the effort of the individual to hold it in that nature of the deviation. We must ask, does that eye turn out of place because of the insufficient action of position. In making any of those measurements with either the perimeter or tropometer we must, therefore, have a suitable instrument, and the observer must also have a familiarity with the instrument before he is able to obtain constant results. Apparently it is almost as difficult to measure accurately the arc of rotation and to estimate properly the character of the rotation of an eye as it is to learn the manipulation of an ophthalmoscope.

C. EXACT CHARACTER OF ARC OF ROTATION

More exact testimony as to the extent and character of the arc of rotation and its rapidity is shown by photographic tracings of the reflex from the moving cornea, or what have been described as photograms. These are considered next in order only because the testimony furnished by them is similar to that given by the perimeter and the tropometer. They all deal with the arc of rotation. As the photographic plate shows to the astronomer the existence of stars which no eye has ever seen with the largest telescope, so does the plate also record the extent of the arc of rotation of an eye and the variations in its movements more exactly than can be seen by the eye of any observer when using a perimeter or tropometer.

The limits of this paper again make it impossible to elaborate this point, but I have already published the method for making these photograms both by daylight and, still better, by artificial light. They are referred to here, as already stated, because this is a more exact method of measuring the arc of rotation.

It should be understood, of course, that it is not a method of any value for every-day office work. The clinician ordinarily has too much to do otherwise to take time for such details. It should be observed, however, that the fact that he is busy has nothing to do with the question at issue. We are now considering careful, honest work. While it is true that such measurements can never become general, it is true also that they do assist somewhat in deciding in a given case whether to make a tenotomy or an advancement. For this reason, if for no other, it is probable that this method of diagnosis in some form will ultimately come into use, at least in large institutions, just as we resort there to the use of the *x*-ray or the giant magnet.

D. THE LIFTING POWER OF THE ADDUCTORS AND ABDUCTORS

Finally some light is thrown on the character of a given deviation by the lifting power of the adductors and abductors. Here again a long digression would be necessary to describe the method of making these measurements. The earlier arrangements for that purpose were outlined in the first volume of the work on the muscles already referred to.

Since that was published a decided improvement has been made in the technic. That was described in a paper I presented at the International Congress in Naples in April. It may be stated in explanation that after cocain has been applied, a speculum is introduced, and the rectus muscle which is under examination (the internal, for example) is caught between the teeth of fixation forceps made very light, strong and only two or three centimeters long. A thread extends from the forceps to the upper arm of what is practically a vertical lever. When the person under examination is told to contract the internal rectus muscle by looking in, he draws on the forceps. This makes a pull on the thread and that, drawing on one end of the lever, causes the other end to pass over a graduated scale. If this lever and scale are properly constructed a given amount of motion of the eye indicates that the internal rectus with the other adductors lifts a given number of grams or fractions of a gram. (An illustration of this instrument is here given.)

It is not contended that the data furnished by this appliance are in every way reliable. On the contrary, much still remains to be learned concerning the lifting power of the horizontal recti and the methods of measuring it. But apparently such measurements do furnish at least corroborative evidence of considerable value

Testimony on this point might also be obtained from one or two other sources, possibly such, for example, as the sound made by the ocular muscles in their contraction, as has been described by Professor Hering, of Leipsic. But these data are apparently of such doubtful value or so very impracticable as to be hardly worthy of mention.

In reviewing, therefore, the different means by which we may learn whether the deviation of an eye in a given case is caused by excessive action of one set of muscles or by insufficient action of another set, it is probable that we must lay most stress on the condition of the refraction, next on the evidence furnished by the perimeter with the tropometer, then the amount of the lifting power, and finally the extent and character of the arc of rotation as shown by the photographic tracings.

But it must be observed that in spite of the most careful tests, frequently repeated, it is practically impossible, in a considerable number of cases, to determine whether an eye deviates in a certain direction because of excessive action of one group of muscles or by insufficient action of the opposing group. It is very certain, however, that the more we study these cases the more do we find to learn concerning them and the more accurate and clear-cut do our ideas become in a given case. It is also certain that there is no inflexible rule for always making tenotomy or for always making advancement. Practice according to such an inflexible rule is hardly less than malpractice. The all-important question is how to select these cases properly; and that can only be done by an expenditure of time and patience. It is to offer some slight suggestions as to how this problem can be solved that I venture to present these few points concerning the decision in a given case.

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ABSTRACT OF DISCUSSION

DR. FRANK C. TODD, Minneapolis: This paper deals with heterotropia and not with heterophoria. The question implied in the title to this paper is one which all will often find difficulty in answering. There are some cases in which it can be definitely answered, while there are others in which at present we can not positively determine the best procedure. As a guide, we have been given some rules which theoretically sound good, but practically do not always work out well. Therefore all study along these lines is of great value, and Dr. Howe has given us valuable contributions, which are helping to solve this and other muscle problems.

I can agree with him that there is no inflexible rule for always making a tenotomy or for always making advancement. There are cases in which one or the other or both operations should be practiced. As a rule, we should tenotomize a too strong or advance a too weak muscle. What we wish to secure, however, is a correction of the defect with binocular single vision if possible and normal rotations, and it sometimes happens after tenotomizing a muscle, which had not shown excessive strength, that is, in which apparently the defect was caused by under action of its opponent, that after operation the opponent develops extra power, while the tenotomized muscle loses none of its former power, successful results being thereby secured and in a case in which according to the rule of strengthening the weak muscle advancement was indicated. This probably occurs because of the constant exercise stimulated by the effort to maintain single binocular vision, but whatever its cause the instructive fact is that it occurs. Generally speaking, the effect of a successful advancement operation is more apt to be lasting than the effect of a tenotomy. Surgically, we may explain this fact on the basis that a tenotomy may result in cicatricial contraction, which may overcome the benefit at first secured, while if such cicatricial contraction takes place following a successful advancement, the effect is thereby increased instead of decreased. Therefore, we may feel more secure as to the ultimate results in an individual case when advancement has been done than following tenotomy. There are so many things to consider in determining the answer to this question that it behooves those who are doing this work to make an elaborate study of each case and also to follow the cases up after operation that valuable deduction may be drawn. Indeed, I believe we may draw more valuable conclusions from the results as shown by the muscle measurements after than before operation, and still more valuable by comparing the measurements made before and after operating.

In those cases in which the vision in each eye is so nearly equal that we may hope to produce single binocular vision, it would seem that the rule suggested in Dr. Howe's paper of tenotomizing a too strong muscle and shortening a too weak muscle, should be followed. In those cases, however, in which incurable and marked amblyopia exists in one eye, and in which, therefore, single binocular vision can not be secured, we have to consider only the cosmetic result. In these cases, whether or not indicated by the above-mentioned rule, I would prefer to confine my operating to the amblyopic eye, and in such cases it will usually be found necessary to combine advancement with limited tenotomy, we thereby avoid disturbing in any way the muscle attachments of the better-seeing eye.

Despite these rules, there are cases in which operators everywhere will be controlled by other considerations than the weakness or strength of the muscles as shown by our present means of measurement, especially in those cases in which measurements do not strongly indicate advancement or tenotomy; for instance, the general condition and temperament of the patient which makes it impossible or very difficult to do an advancement operation under local anesthesia, in which for some reason it may be desirable not to use general anesthesia.

I desire to emphasize Dr. Howe's plea for a careful study of these cases, but not alone previous to operation, for I believe a similar study of muscle conditions after operation will prove still more instructive.

DR. E. E. HOLT, Portland, Maine: All will agree with Dr. Howe on the necessity of careful examinations of each individual case of heterotropia in order to determine how best to correct it, whether we carry out all the details he suggests or not. In some cases, as he says, it is impossible to decide exactly what group of muscles is at fault, and therefore it is difficult to determine, beforehand, just what operation will best accomplish the desired result. It is just thirty-one years ago

since I began to practice advancement of a muscle, or Tenon's capsule, for the correction of heterotropia. In 1885 I had performed the operation of advancement twenty-five times, and presented a paper embodying my experience with these cases to the American Ophthalmological Society at its twenty-first annual meeting. So far as I am aware, this was the first series of cases of advancement of a muscle or Tenon's capsule for the correction of heterotropia in this country, and I remember distinctly how unfavorably my paper was received by the society.

Dr. Knapp, in discussing it, said: "I only want to point out the dangers of advancement and would like to take issue with Dr. Holt in the group of cases of excessive convergence. I have mostly been able to correct the highest degrees of strabismus by two operations and stitching the eye to the commissure. In some cases I have been obliged to make a third tenotomy. I should rather make three tenotomies than make one advancement. Personally, I have had no bad luck with it, but I remember that when a student I had a conversation with the assistant of one of the most renowned ophthalmic surgeons of Europe. 'This operation,' said I 'strikes me as being somewhat dangerous, yet the professor has never said anything about failures.' 'No,' replied the assistant, 'he has not, but I have put the artificial eyes in.'"

Dr. Theobald of Baltimore said he could endorse what Dr. Knapp had said, for he never found it necessary to do an advancement.

The next year, 1886, Dr. Knapp read a paper on "Advancement of Tenon's Capsule in Strabismus" before the American Ophthalmological Society, which he began as follows: "When at our meeting of last year Dr. Holt advocated the correction of higher degrees of convergent squint by tenotomy of the contracted muscles and a simultaneous advancement of its antagonist, I opposed this plan because I was—and still am—convinced that the highest degrees of convergence can be corrected by one tenotomy on each internal rectus, and further, because I considered advancement not quite a safe operation in all cases. Visiting the ophthalmic clinics of Berlin and Paris last winter, I was surprised to find that with Schweigger, Hirschberg, Landolt and others, this plan was a subject of ordinary practice. They claim for it that the correction obtainable by it is as certain as with one or two simple tenotomies; moreover, that protrusion of the eyeball and secondary divergence are less likely to occur. Taking further into consideration how pleasant it is to remove the disfigurement in one sitting and not to be obliged to attack the good eye, we can readily appreciate the advantage of this new plan of operation over the old."

As to the results obtained from advancement in the series of cases reported at that time, my paper affirms that: "When it is considered that the operation for advancement of a rectus muscle is employed in the worst cases of strabismus, twenty corrections of the deformity out of twenty-five operations which was the result in this series of cases may be called a success, for it not only brought the eyes parallel and gave binocular fixation, and in some cases binocular vision, but the eyes were left with but little or no staring appearance and with good movements in all directions." In the twenty-four years since 1885, I have operated a good many times, though of late years not so frequently as formerly, because the patients who came to me did not need the operation of advancement for correcting the heterotropia. That the method of advancement of a muscle, or Tenon's capsule, for the correction of certain forms of heterotropia has become a universal practice, is certainly gratifying to one who first advocated the operations in this country.

DR. ALEXANDER DUANE, New York: Dr. Howe has struck the keynote when he says "Practice according to such inflexible rules is hardly less than malpractice." There is, in fact, no rule that covers all cases. Each case must be judged by itself. It has always seemed to me that it is not so much the maximum ability of each eye to rotate by itself as the way in which the two eyes rotate when acting together, that shows us what to do in these cases. I have not found that the determination of the range of excursion of each eye separately with the tropometer or perimeter has helped me so much as the determination of the range of coordinate binocular movements, parallel, convergent and divergent. These I determine by finding: (a) The amount of deviation for distance as compared with that of near. (b) The prism divergence. (c) The convergence near-point. (d) The field of binocular single vision and the ability of the two eyes to rotate when moving together. This shows whether parallel movements are equal in the two eyes, or whether one eye moves excessively or insufficiently as compared with the other. This is best done by examining with the light and the tangent plane; or, if no diplopia can be elicited, by testing the screen deviation in the different directions of the gaze and by noting whether one eye follows the other in all movements or lags somewhere.

After tenotomy—especially of the superior and inferior rectus—the muscle may give way or some other changes take place by which a slight insufficiency is converted into a complete paralysis. This is a very disastrous result and one difficult to remedy. We should, therefore, be careful to avoid complete section of the superior and particularly the inferior rectus. Again, in advancement, months after the operation, the effect may diminish greatly, so that the result of our operation falls much below our expectations. There is an important difference between advancement and tenotomy, which is not generally recognized, and which is seen especially in operations on the elevators and depressors. A thorough-going tenotomy, sufficient to relieve a marked deviation in the primary position, produces a permanent paresis of the muscle. Consequently, it tends to produce diplopia, which increases fast as the eyes are moved in one special direction toward the periphery of the field of fixation. Or, to put the matter in another way, its effect in offsetting a deviation is much more pronounced in the periphery of the field of fixation than in the primary position. Thus tenotomy of the right superior rectus which produces an effect of 6 degrees or 7 degrees in the primary position would produce an effect of 15 degrees or 20 degrees or more in the right upper field, an effect of 7 degrees or 8 degrees in the left upper field, and very little effect in the lower field except near the primary position. An advancement, on the other hand, produces an effect which is often about as pronounced in the primary position as it is in the periphery of the field of fixation, and is pretty equally distributed over the whole field. Moreover, the advancement of a muscle tends to restrict the movement of the antagonist. Hence, advancement of the right superior rectus would produce an effect marked in the primary position, not very much more marked in the upper field, and perhaps actually diminishing in the far upper field; an effect, too, about equal in amount in the right upper and left upper portions of the field. The effect would also be marked in the lower field, and we may even find evidence of an artificial insufficiency of the inferior rectus in a diplopia developing when the eyes are moved far down. It follows that in correcting a paretic hyperphoria a tenotomy often serves better than an advancement, since the latter does not offset the diplopia nearly so well. If I attempt to correct paresis of the right superior rectus by advancing the muscle, I am likely to leave residual diplopia in the outlying upper field (especially the right upper quadrant), and I may hamper the action of the right inferior rectus enough to produce diplopia in the outlying lower field. If, on the other hand, I attempt to relieve it by doing a tenotomy of the left inferior oblique, I may not neutralize the diplopia in the primary position, but I shall equalize the diplopia in the upper field fairly well. In most cases of extensive paretic hyperphoria, advancement of the paretic muscle, combined with tenotomy of its opponent in the same eye or of its associate in the opposite eye, will be found necessary. In hyperphoria not paretic, which is largely the same in all parts of the field of fixation, advancement (preferably of the inferior rectus) will do better than tenotomy, particularly if the deviation is large. In small comitant hyperphorias a guarded tenotomy of the superior rectus seems the best procedure.

DR. W. R. BROUGHTON, New York: I think the discussion is confused a good deal. I do not believe the strength of the muscle has very much to do with heterophoria. I believe it is due to a mal-attachment of the muscle or to the length of the muscle, because one finds in high degrees of exophoria

very strong interni with adducting power over 50. So that I do not believe it is as much the strength of the muscle as a question of regulating the attachment of the muscle. The question of whether we shall advance or tenotomize depends on whether the muscle will stand setting back without getting a limitation of the rotation. We all admit that tenotomy is easier for the patient and the operator, and if the muscle will stand setting back on the eyeball without limiting the field of rotation to the side, tenotomize; if it will not, then advance. As a matter of fact, in extreme cases we usually tenotomize first on each eye and then advance, getting normal rotation when we finish.

DR. F. VALK, New York: In all cases of heterophoria I do not think that we should consider the near-point, as there may be esophoria at the distance and exophoria in the near. These cases were first noticed by Noyes, and come under the designation of dextrophoria. My contention is that if we have a perfectly normal balance in infinity we need not consider the heterophoria shown at the near-point. We must have a certain standard of motility as well as of vision, and if we have a deviation from that standard, heterophoria, we must adopt such procedures as may restore that standard. Now, I would suggest that we have only one instrument of any real scientific value, outside of the laboratory, for the estimation of this field of vision, and that is the tropometer of Stevens. Now, in the study of heterophoria we must not limit ourselves to the lateral muscles, but granting that, what are the indications for an operation? A tenotomy or an advancement even in the hands of a skillful operator has a certain element of danger, so may we not try a more conservative path? In heterotropia, do we not have an anatomic weakness of the externi which is always shown by the examination of the rotation by the tropometer, and Landolt long ago proved that advancements are always indicated in squint? But advancements are extensive operations, and I have been more than pleased with my results when I have done the operation of shortening on the externi, and then, if necessary, I have performed a guarded tenotomy under cocain on the squinting eye. For the purpose of illustration, let me give you the rotation of the eyes in a recent case of squint corrected by a double shortening:

R.E. 30° up, 50° down, 55° in, 30° out.
L.E. 30° up, 50° down, 60° in, 35° out.

It seems to me that a moment's glance at these figures will give us the necessary information as to the necessary and safe procedure, even in so-called congenital squint.

Spasmodic Contraction of the Pylorus in Infants.—A communication on this subject in the *Zentralblatt für Kinderheilkunde*, May 1, 1909, from von Starck, of Kiel, states that none of the children in his fourteen cases of spastic stenosis of the pylorus was of a specially nervous temperament or had inherited such. All had been born naturally at term and were normally developed; 2 were brothers born within two years. Half of the twelve children given treatment were breast-fed; his treatment consisted merely in giving the breast or other milk with a spoon or from the bottle, allowing only very small amounts at a time. The stomach was rinsed out only in 3 of the cases, including the one in which the child succumbed to convulsions, not connected with the pylorospasm. Saline infusion was necessary in a few cases, and in some cases he gave small doses of opium with valerian or chamomile, or in the form of Dover's powder or injection of a minute dose of morphin. Warmth to the stomach gave evident relief. He did not advocate operative intervention in any instance, and the children all recovered without it, the cure being complete in from six weeks to four months in all but one case in which eight months were required. The disturbances were first noted in the first or second week of life. Half of the children were the first-born in the families, and two-thirds were boys. Irritation of the stomach mucosa by the unaccustomed presence of food is the probable source of the trouble, too large amounts being allowed at first. Ten of the little patients have been seen again, from one year to nearly five years since, and all are exceptionally robust.

NEUROPATHIC KERATITIS AND SOME ALLIED CONDITIONS, WITH SPECIAL REFERENCE TO TREATMENT *

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During the past four years I have given special attention to all cases of eye inflammation that I have had reason to believe were of neuropathic origin. As a result of my observations I have become convinced that lesions of the eye, due to disturbance of innervation, are too often incorrectly diagnosed and treated. Moreover, I feel sure that many cases of keratitis reported in the literature as unusual are really examples of neuropathic keratitis which do not happen to correspond with textbook descriptions. No doubt in some instances the real nature of a case of neuropathic keratitis is overlooked in the attempt to assign to it a bacterial origin.

The only neuropathic conditions of the eyeball due to disturbance of sensory nerves about which anything definite seems to be known are confined to the cornea, iris and conjunctiva. Of these only neuropathic keratitis is at all well recognized. The latter term is not here used synonymously with the so-called neuroparalytic keratitis as is sometimes done, but in the broad sense indicated by its derivation, that is, to designate any lesions of the cornea due to disturbance of its nerve supply.

CONDITIONS EMBRACED IN NEUROPATHIC KERATITIS

The corneal conditions now generally accepted as neuropathic in origin are classified as herpes zoster corneæ, keratitis neuroparalytica, herpes febrilis corneæ and herpes corneæ neuralgicus. This classification, so far as it goes, is relatively satisfactory, if it is understood not to correspond strictly to differences in etiology. There are probably many, however, who still cling to the traumatic theory of neuroparalytic keratitis, but critical analysis made by Wilbrand and Saenger[1] should convince anyone that this is untenable. The simple fact, it seems to me, that neuroparalytic keratitis never presents any features that have not occurred also in the keratitis of herpes zoster is sufficient evidence that the two are produced in the same way.

In addition to these forms of neuropathic keratitis, several other corneal conditions have been described which are, perhaps, not generally accepted as neuropathic, but which I think should be included under this head. These are dendritic keratitis, superficial punctate keratitis, keratitis profunda, keratitis disciformis, and traumatic relapsing erosion of the cornea. My reason for holding this view is that the corneal changes considered characteristic of these conditions are not infrequently encountered in undoubted neuropathic keratitis, such as herpes zoster corneæ and herpes febrilis corneæ, and that typically they are associated with corneal hypesthesia and give the characteristic staining with fluorescin. Thus, dendritic keratitis may occur under the same conditions as herpes febrilis corneæ and is often associated with herpes labialis. The dendritic figure, moreover, may be combined with other features of neuropathic keratitis, such as superficial punctate

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* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Wilbrand and Saenger: Die Neurologie des Auges, Wiesbaden, 1901, vol. ii.

spots and even vesicles. The malarial keratitis of Kipp[2] is undoubtedly identical with dendritic keratitis and is, therefore, not characteristic of malaria, except probably to the extent that neuropathic keratitis of malarial origin almost always assumes this form.

Superficial punctate keratitis, Fuchs[3] states, is allied to herpes febrilis corneæ, but he does not expressly state that it is neuropathic in origin. In the cases I have seen the staining with fluorescin has been characteristic and there has been hypesthesia of the cornea. It seems to me probable that the condition is really identical with herpes febrilis corneæ, all the lesions by chance taking the punctate form instead of only a few as is usually the case. It is possible, however, that cases due to bacteria may occur presenting this corneal picture. In fact, it is known that this actually occurs in leprosy, and Herbert[4] has described what he regards as bacilli in the epithelial cells in cases seen in Bombay. The bodies described by Herbert, however, may have been products of cell necrosis.

Keratitis profunda and keratitis disciformis Fuchs considers to be distinct conditions. The only constant difference between them, however, seems to be the presence of a gray border around the disc in the latter form. Fuchs holds the view that disciform keratitis is due to some unknown micro-organism which gains entrance through the abrasions resulting from herpes or trauma. Von Hippel[5] does not discuss the possibility of a neuropathic origin, but thinks that both conditions are due to changes or defects in the endothelium which allow the aqueous humor to infiltrate the cornea, and suggests that if Fuchs' view in regard to infection is correct the infection may come from within. He does not believe that the two conditions can always be sharply differentiated from each other. Peters[6] maintains that keratitis disciformis is due to a disturbed innervation leading to edema and necrosis and that the endothelium is secondarily affected. Meller[7] made a microscopic examination of an eye showing the condition in an advanced stage and concluded that Fuchs' explanation was correct. It does not seem to me, however, that this conclusion was warranted by his findings. The facts that both keratitis profunda and keratitis disciformis occur most commonly after herpes zoster ophthalmicus or trauma, that both may be associated with corneal hypesthesia and show outlying superficial punctate spots, impel me to believe that both conditions are essentially neuropathic, the minor differences between them being dependent on differences in the intensity of the nerve irritation.

The condition known as traumatic corneal erosion, which is undoubtedly an exaggerated form of traumatic keratalgia, has been explained by assuming that the epithelium of the cornea, owing to the injury, does not regenerate normally, and is easily brushed off by the lids, especially after the latter have adhered to it during the night. Wickerkiewicz[8] and others, however, have explained it as due to injury of the corneal nerves, and attribute its absence after more severe injuries to the fact that in the latter case the nerves are actually broken. This view seems to me the correct one, because the keratitis produced may simulate almost any of the forms of neuropathic keratitis just described, and there is hypesthesia of the cornea as well as the characteristic staining with fluorescin. Recently Cuperus[9] has brought forward the view, based on the fluorescin test, that the cornea is not normal between the attacks, which I can confirm by my own observations. I am sure, too, that if this test is always carefully applied, few cases of traumatic keratalgia will be met in which corneal lesions are not seen. The neuropathic theory of relapsing traumatic erosion of the cornea accords also with the fact that a special kind of injury is necessary, such, for instance, as that due to the snap of a twig. The injury to the nerves thus produced, however, does not always lead to actual erosions, but, as already indicated, may produce a condition indistinguishable from keratitis profunda. This condition I have seen in almost all cases of traumatic neuropathic keratitis in which the injury did not act directly upon the cornea but through the lid.

It might be expected that in neuropathic keratitis in which the epithelium is almost always altered if not actually lost for a considerable period of time, infection would be a frequent occurrence. This, as a matter of fact, is not the case, for serious infection occurs in only a small percentage of the cases. Since, however, neuropathic keratitis is relatively common, the small number of infected cases constitute a large percentage of all cases of ulcerative keratitis. In fact, while I have no exact statistics bearing on this point, I believe that they constitute the largest percentage of such cases, exclusive of gonorrheal and phlyctenular disease. Some of the worst cases of ulcus serpens have a neuropathic basis, traumatic or otherwise. In these cases, unless seen at an early stage of the infection, it is difficult to determine the neuropathic element. According to Peters,[6] it is the neuropathic element to which ulcus serpens owes its peculiar characteristics.

PATHOLOGY OF NEUROPATHIC KERATITIS

Knowledge of the pathology of neuropathic keratitis is based almost entirely on postmortem examinations made in cases of herpes zoster and neuroparalytic keratitis. Few observations have been made in connection with the histology of the corneal lesions, on account, no doubt, of the difficulty in obtaining material at a sufficiently early stage and uncomplicated with lagophthalmic keratitis. The work of Head and Campbell[10] on herpes zoster, and the admirable exhaustive review of the whole subject by Wilbrand and Saenger,[1] have, I think, established the fact that neuropathic keratitis is due to an irritative lesion of the fifth nerve or Gasserian ganglion. Head and Campbell maintain that in zoster the most important lesion is in the ganglion, but Wilbrand and Saenger give good reasons for believing that the essential lesion is a neuritis. As to the peripheral changes in the skin and cornea, Head and Campbell do not give any definite explanation, but state that they do not assume the existence of trophic nerves.

Wilbrand and Saenger, on the other hand, think that the peripheral lesions are produced in some obscure way by abnormal impulses from trophic nerves. The existence of trophic nerves, however, has never been demon-

2. Kipp, C. I.: Keratitis from Malarial Fever, Tr. Am. Ophth. Soc., 1880, p. 91.
3. Fuchs, E.: Lehrbuch der Augenheilkunde, Leipsic, 1907.
4. Herbert, H.: Ophthal. Rev., 1901, p. 339.
5. Hippel, E. von: Die Ergebnisse meiner Fluoresceinmethode zum Nachweis von Erkrankungen des Hornhautendothels, Arch. f. Ophth. (Graefe's), 1902, liv, 509.
6. Peters: Ueber traumatic Hornhauterkrankungen und ihre Beziehungen zum Herpes corneæ, Arch. f. Ophth. (Graefe's), 1904, lvii, 93.
7. Meller, J.: Die histologischen Veränderungen des Auges bei der Keratitis disciformis, Klin. Monatsbl. f. Augenh., 1905, ii, 335.
8. Cited by Wilbrand and Saenger: Die Neurologie des Auges, ii, 84.
9. Cuperus, N. J.: Ueber sogennante recidivirende Erosio corneæ, Arch. f. Augenh., 1908, lxi, 26.
10. Head and Campbell: The Pathology of Herpes Zoster, Brain, 1900, p. 353.

strated. I would suggest a theory which, while admitting the possibility, does not necessitate the assumption of trophic nerves, and which seems to explain more definitely the production of the peripheral lesions. It is a well-known physiologic fact that if a nerve of any kind is stimulated, impulses, as shown by the galvanometer, pass along it in both directions.[11] Assuming now that such impulses are produced by some lesion of the fifth nerve, it is self-evident that the efferent impulses must give rise to some changes, however, slight, at the nerve terminals. One of the simplest changes that could be imagined, and one that would seem to be physiologically possible, would be the production of an acid reaction. If these impulses were continued for a considerable period of time, sufficient acid or other irritating substance might be produced as to cause the lesions in both the skin and the cornea.

This theory of neuropathic keratitis harmonizes perfectly with the recent theory of Fischer[12] in regard to the nature and cause of edema. In herpes of the cornea the occurrence of vesicles leaves no doubt that here is a local edema. This, it seems to me, establishes the fact that edema is not dependent essentially on changes in blood vessels—a fact that is not elsewhere easy of demonstration. It might be urged that the vesicles on the cornea were due to a general edema dependent in some way on the vessels around the cornea or within the globe, were it not that the vesicles often occur and remain definitely localized. According to Fischer, the cause of edema in general is an increased affinity of the tissue colloids for water. This increased affinity may be brought about by a variety of chemical changes, the most important of which is probably the occurrence of acid. It is apparent at once how satisfactorily this theory may be applied in the explanation of the lesions of neuropathic keratitis. Thus the irritative lesion, acting on the fifth nerve or Gasserian ganglion, sends impulses to the cornea which produce an acid reaction or other chemical change at the nerve terminals. This in turn acts on the colloids of the corneal lamellæ or epithelium, causing them to become edematous. The edema affecting the epithelium from behind produces vesicles, erosions, or less marked changes. To explain the denser and, to a greater or less degree, permanent opacities which occur in cases of long duration, it is only necessary to assume further that proliferative changes take place. These could be produced by the action of the irritant on the corneal corpuscles leading either directly to proliferation or to necrosis followed by the process of repair.

The variations in the corneal changes in neuropathic keratitis could be readily explained by variations in the intensity of nerve irritation and in the number and distribution of the nerve fibrils involved. The sharp definition of many of the lesions, notably the punctate spots and dendritic figures, may perhaps be simply an expression of the fact that the fibrils in the nerve trunks are collected into bundles. Wilbrand and Saenger have offered an ingenious explanation of the variations that occur in different cases in regard to pain and disturbance of corneal sensibility. This is, briefly, that these variations are dependent on whether the nerve lesion produces impulses in one or both directions, and on the extent to which it blocks off impulses in one direction or the other. It is obvious that this explanation is applicable whether or not the existence of trophic nerves is admitted.

11. There is evidence also that even under normal conditions efferent impulses, called antidromic impulses, may pass along sensory nerves. Without regard to this possibility it seems probable that all nerves, both afferent and efferent, may in a sense act as trophic nerves, because it is almost self-evident that there must be some reciprocal relationship between the vital activities of the tissue cells and of the nerve filaments with which they are so closely related anatomically.

12. Fischer, M. H.: The Nature and Cause of Edema, THE JOURNAL A. M. A., Sept. 5, 1908, li, 830.

ETIOLOGY OF NEUROPATHIC KERATITIS

As just explained, neuropathic keratitis is almost certainly due to an irritative lesion of the fifth nerve or its ganglion. The character of this lesion otherwise seems to be unimportant, so that similar corneal changes may be produced by various causes, such as trauma, tumors, meningitis, tubercle, syphilis, hemorrhage, or to primary neuritis. In a particular case, therefore, it may be difficult or impossible to determine the etiologic factor. Head and Campbell[10] assert that herpes zoster is a specific infectious disease analogous to acute poliomyelitis. This may be true of the majority of cases, yet a condition indistinguishable from zoster may occur in the course of other infections, such as influenza, or may be produced by trauma or by the action of poisons, especially arsenic. Some observers have even asserted that an atypical form of zoster may be produced by hysteria. In certain cases of herpes corneæ neuralgicus, periodical eruptions of vesicles on the cornea have coincided with the menstrual periods.

Probably the largest number of cases of neuropathic keratitis come under the designation of herpes febrilis corneæ. In most of these there is a history of a recent attack of coryza, bronchitis, pneumonia, malaria, or gastrointestinal disturbance, and most often there is herpes facialis or labialis. Cases are met, however, in which no etiologic factor can be determined, so that the distinction between them and herpes zoster corneæ without skin involvement, the so-called *forme fruste*, is obscured. It is probable also that the conditions which ordinarily produce herpes febrilis may exceptionally give rise to a skin eruption identical with that of zoster.

As already stated, trauma of a certain kind acting on the cornea may produce almost any of the corneal lesions of neuropathic keratitis. This is true also of trauma acting on the nerve trunk or Gasserian ganglion from any cause, such, for instance, as fracture of the skull. The indefiniteness, from an etiologic standpoint, of the distinctions between the various classes of neuropathic keratitis is exemplified also by the so-called neuroparalytic keratitis. This term, as commonly employed, seems to be incapable of an exact definition, and is used in an entirely arbitrary manner. It can not be defined on the basis of etiology, since the same etiologic factor, trauma, for instance, may at one time produce neuroparalytic keratitis and at another a condition indistinguishable from herpes zoster. Probably it is most often applied to cases which can not be included under herpes zoster or herpes febrilis. It is used especially to denote the keratitis due to extirpation of the Gasserian ganglion, syphilis, etc., and that due to general nervous disease, such as tabes.

DIAGNOSIS OF NEUROPATHIC KERATITIS

As already indicated, in the majority of cases that come to the attention of the ophthalmologist, the remote causes underlying the nerve lesion seem to be of relatively little importance and, in fact, not clearly understood. On the other hand, in cases of brain tumor, fractured skull, tubercle, meningitis, tabes, etc., the eye condition may be only an unimportant symptom the re-

mote cause of which is at once sufficiently obvious. In any case the possibility of poisoning, especially with arsenic or lead, should not be lost sight of.

In making the diagnosis of the keratitis itself the important factors to be considered are the sensibility of the cornea, the appearance of the corneal lesions, especially after staining with fluorescin, the injection of the eye, the intraocular tension, the size of the pupil, the subjective symptoms, and the occurrence of herpetic skin eruptions. The testing of the relative sensibility of the cornea requires care in order that the results may be of any value. When the sensibility is completely abolished the condition is, of course, easily determined, but this occurs in very few cases. I have found a piece of thread, as recommended by Fuchs,[3] the most satisfactory test object. More precise methods have been devised, such as blowing a stream of air on the cornea, but in my opinion these are too delicate to be of any practical value. For clinical purposes it is also not practical to differentiate the senses of touch, pressure, temperature and location. I am sure that any change in the sensibility of the cornea to which it is safe to attach any importance can be determined by the thread test if it can be determined at all. The test should be made with reference both to the lid reflex and the sensations of the patient. The former is the only one which can in many cases be relied on, especially in neurasthenic individuals. Not infrequently the lid reflex may be elicited without the patient being fully aware that the cornea has been touched at all. It is best determined by having the patient keep his eyes open without assistance. Unfortunately, many patients as soon as their eyes are approached put their eyelids into a more or less spastic condition which inhibits the lid reflex. In some cases it is necessary to raise the eyelid with the thumb. This is not so unsatisfactory as might be thought, because here the reflex may be both felt and seen by the observer. The cut end of the thread should not be punched directly into the cornea, but rubbed over the surface, the pressure being increased as found necessary. The same path should never be repeatedly traversed, as this may render the epithelium more sensitive. The unaffected eye should, of course, always be tested as a control.

The sensations of the patient may be ascertained at the same time the test for the lid reflex is made. It is always a surprise to the patient to find that the affected eye is less sensitive than the other, and he may answer incorrectly for psychologic reasons. This fact, however, obviously makes the test more reliable when hypesthesia is found. Many patients are influenced by seeing or feeling the movements of the hand making the test, so that these should be masked as far as possible. I always make several preliminary movements before actually touching the cornea, and not infrequently, without any intention to deceive, the patient states that a sensation is felt. This may happen when the cornea is completely anesthetic, and is probably due to the irritable condition of the cortical centers produced by the constant impulses from the nerve lesion. Too much reliance should not be placed on diminution of sensibility over infiltrated areas, as this might occur in other conditions. Various portions of the cornea should always be tested, since the sensibility may be more impaired in some than in others. The periphery of the cornea is normally less sensitive than the center.

The importance of testing the sensibility of the cornea for the diagnosis of neuropathic keratitis is exceedingly great, for while it may be impaired in other conditions, notably in glaucoma and late stages of syphilitic interstitial keratitis, these as a rule are easily distinguished from neuropathic keratitis. In the early stages of interstitial keratitis I have found the corneal sensibility normal or increased, even over the infiltrated areas. There is considerable variation in the sensibility of the cornea among normal individuals; in old age it is apt to be markedly diminished, but the unaffected eye usually offers a satisfactory control here. Cases of neuropathic keratitis are said to occur in which the sensibility of the cornea is normal or increased, but these are too infrequent to be of much importance.

The most characteristic corneal lesions in neuropathic keratitis consist of erosions, vesicles, filaments (filamentous keratitis), superficial punctate spots, and infiltrates or ulcers of more or less dendritic form, occurring singly or in different combinations. Peters has pointed out that the epithelium may be loosened and movable over the affected areas. In cases of long standing the cornea may show permanent opacities and vascularization. The new vessels may be either deep, superficial or in a pannus formation, and are usually few but of large caliber. They are rarely so deeply seated as those in the interstitial keratitis of syphilis. In many cases the corneal lesions are readily seen, but in others they may be overlooked if the fluorescin test is not used. Simple as this test is, it is seldom properly applied and its full value is not generally appreciated. Usually after instilling a drop of the solution the intense stain, which immediately occurs when erosions are present, is alone looked for, whereas this is relatively unimportant, since erosions as a rule may be seen unstained. More important is the light green staining, which is either superficial or relatively deeply seated, and which is not due to actual erosions. To bring this out the fluorescin solution should be allowed to act one or two minutes, and if there is profuse lachrymation a second drop should be instilled. The conjunctival sac should then be washed practically free from fluorescin with boric acid solution. This is important because the film of fluorescin solution over the surface of the cornea may make opacities of any kind, or facets, appear slightly green, or, on the other hand, may mask the areas in the cornea which are actually stained.

Staining of the cornea with fluorescin, exclusive of erosions, occurs in conditions other than neuropathic, but these are usually easily recognized. It occurs in glaucoma and in lagophthalmic keratitis.[13] Deeply seated staining, according to von Hippel,[5] is always due to injury of the corneal endothelium. In regard to glaucoma I can confirm his observations, for I have found the endothelium altered or absent in a number of eyes enucleated for this condition. In one of these cases I observed deeply seated fluorescin staining forty-eight hours before the enucleation. It does not necessarily follow, however, that the injury to the endothelium was the cause of the staining, because both may have been due to changes within the cornea associated with edema. I have failed to obtain any staining in tuberculous interstitial keratitis except in cases in which the epithelium was affected by an infiltrate lying just beneath it. According to von Hippel, there is a limited class of cases of interstitial keratitis due to congenital syphilis in which the infiltrates are chiefly central, which show

13. Fluorescin staining similar to that seen in lagophthalmic keratitis may often be obtained in the normal eyes of rabbits or guinea-pigs, being due no doubt to the infrequency of winking in these animals.

deep staining with fluorescin. This staining has also been seen in cases of sympathetic ophthalmitis, in which I have myself observed it. I have seen it also in certain cases of iritis which seemed to be undoubtedly syphilitic. Von Hippel apparently did not consider the possibility of a neuropathic basis in any of his cases. Considering the profound changes that may occur in the epithelium in neuropathic keratitis, it would not seem strange if the endothelium should also sometimes suffer. Possibly some of the cases of iritis described by von Hippel were similar to the cases of neuropathic iritis considered below.

The injection of the eye in neuropathic keratitis is almost always entirely conjunctival, even when there is iritis. The amount of injection seems to bear no relation to the degree or character of the corneal involvement. Thus a marked conjunctival injection associated with chemosis may occur while the cornea shows a few lesions brought out only by the fluorescin test. This condition is apt to be mistaken for an infectious conjunctivitis. On the other hand, the cornea may be cloudy throughout and almost completely denuded of epithelium without any ocular injection. When either of these conditions occurs it obviously assists in the diagnosis. There does seem to be some relation, however, between the amount of injection and the amount of pain, although this is not as close as might be expected. In most cases the injection is no doubt due to a reflex vasomotor dilatation arising from the central irritation produced by the nerve lesion. In the marked cases it does not seem possible that this could be the sole cause, but that it is here due largely to the direct irritation of the nerves supplying the conjunctiva. In this way also may be explained the edema of the eyelids which is sometimes associated with neuropathic keratitis. In cases of infection the injection is increased, but often less than would be expected.

The pupil in neuropathic keratitis is usually somewhat smaller than in the normal eye. In exceptional cases, however, there has been mydriasis due to an associated paralysis of the third nerve. The intraocular tension is apt to be subnormal, but seldom is it decidedly so. In rare cases glaucoma has ensued.

The subjective symptoms, like the ocular injection, bear no constant relation to the amount of corneal involvement. Pain of a neuralgic character, referred to the eye or neighboring parts, may be extremely severe or entirely absent. Often it is present at the onset only, but it may persist throughout the attack. The feeling of foreign body irritation is common, probably due to the presence of erosions. It may be absent, however, with the greater part of the cornea eroded. Not infrequently all that is complained of is dimness of sight. In such cases the corneal infiltrates may be mistaken for old scars if the fluorescin test is not applied.

The presence of an herpetic eruption on the face should, of course, always be looked for. When the eruption is extensive, as in well-marked cases of herpes zoster, it is too obvious to escape notice, but it may be mistaken for erysipelas. Sometimes all that may be found are one or two vesicles on the side of the nose or high up on the forehead. If herpes of the lips is not present at the time of the examination, inquiry will often elicit the fact of the occurrence of a "cold sore."

TREATMENT OF NEUROPATHIC KERATITIS

The local measures usually employed in the treatment of these patients have been the use of the bandage, atropin, ointments, and in severe cases the application of irritating or caustic agents, such as tincture of iodin or the actual cautery. None of these, however, can be said to be entirely satisfactory, although in mild cases an occlusive bandage may be alone sufficient. The use of the actual cautery has recently been strongly recommended by Amman[14] for herpes febrilis corneæ. Cauterization may no doubt in some cases put an end to the process, but only at the sacrifice of more or less corneal tissue, so that the resulting opacity is probably as great, if not greater, than if the case had remained untreated.

Within the past two years I have adopted a method of treatment, founded on what I believed to be a rational basis, which has proved uniformly successful. It occurred to me that since neuropathic keratitis was due to an irritative lesion of a sensory nerve, recovery ought to follow if the nerve terminals were anesthetized by means of a local anesthetic. Even if permanent anesthesia proved impracticable, it seemed that treatment along this line should lead to improvement in the condition. As an anesthetic for this purpose I selected holocain, for several apparently unimportant reasons, one of which was that it was slightly antiseptic and that its solutions remained sterile. My results were so satisfactory that I have not tried any of the other anesthetics, although it is possible that some of the latter might prove still more efficient. The most important reason, however, for continuing with holocain was that by adopting a single method of treatment in a series of cases, which were extremely variable anyway, it would be possible to arrive at more accurate conclusions as to its value than if the treatment was continually being changed.

Owing to its toxicity it did not seem advisable to use holocain in oily solution or in the form of an ointment, and from the beginning I have used a 1 per cent. aqueous solution. After some experimentation in regard to the frequency of the instillations, I concluded that intervals of no more than two hours gave the best results, and that it was no advantage to make them as short as one hour. I also concluded that a bandage was essential, and of this I feel certain. The bandage that has proved most acceptable to the patients has been one of the well-known celluloid eye-shades with an eye-pad placed beneath. This has the advantage of being cooler, easier to remove for the frequent instillations, and of being less unsightly than an ordinary bandage. The elastic cord should be adjusted to give just sufficient pressure to keep the eyelids closed and no more. In one very marked case, in which only a rim of epithelium remained at the periphery of the cornea, I obtained more rapid improvement by bandaging both eyes. Patients in such cases as this and patients badly infected at the outset are the only ones I have not treated as out-patients. In all cases the bandage and instillations were omitted during the night.

As a rule a mydriatic was not prescribed unless there was a well-marked iritis. If the pupillary reaction was not quite normal it was generally sufficient to instill a drop of atropin solution at the time of each visit. At the suggestion of Dr. P. S. Smyth, I have sometimes added scopolamin hydrobromate in the proportion of 1/300 to the holocain solution with satisfactory results, but I can not say that a small amount of atropin would not prove equally satisfactory.

I have now treated over one hundred patients by this method, and have yet to see a patient who did not im-

14. Amman, E.: Neues Heilungsverfahren beim Herpes Corneæ febrilis, Arch. f. Augenh., 1908, lxi, 194.

prove from the time the treatment was begun. In some cases the cornea failed to stain with fluorescin within a week; in others more or less staining was obtained for a number of weeks. Usually this involved only one or two punctate spots which could easily have been overlooked if not carefully searched for. The treatment was continued until not the slightest staining could be obtained. The bandage was then dispensed with unless, as sometimes happened, the patient desired to wear it longer.

Local treatment of the eye could not, of course, have any influence on the source of the nerve irritation so that it might be expected that when it was discontinued the keratitis would recur. This did, in fact, sometimes happen, but in some cases, which no doubt would have run a short course anyway, the keratitis did not recur even when the local treatment was discontinued within one week. No doubt in such cases the nerve lesion had within this time undergone partial or complete retrogression. In a number of cases recurrences took place repeatedly so that it became advisable to try some general treatment.

It suggested itself to me that since arsenic seemed to have a special affinity for nerve tissue, as indicated by the well-known fact that it may produce an herpetic skin eruption, it might act in a specific manner on the nerve lesion in neuropathic keratitis. Whether or not this is really the case, my results following the administration of arsenic have been most satisfactory. In cases which over a period of several months had recurred whenever the local treatment was discontinued, the lesions, after several weeks' treatment with arsenic, became permanently healed. Since it is impossible at the outset to determine whether or not a case will assume this chronic type, to save time I now give arsenic in all non-traumatic cases in which some other general treatment is not indicated. My custom has been to order for adults two drops of Fowler's solution three times daily, to be increased one drop each day until ten drops is reached, at which dose it is continued for a month or longer if necessary. The patients are, of course, warned to note the symptoms of arsenic poisoning, such as gastritis and enteritis.

The cases of neuropathic keratitis in which the treatment with arsenic was not indicated have been very few. In two cases in which lead-poisoning was suspected the use of potassium iodid was followed by prompt recovery This was also used at first in a few patients with syphilitic histories, but with apparently no effect, whereas the arsenic treatment was successful. In several patients with histories of repeated malarial attacks, but with no active symptoms of malaria, arsenic was used instead of quinin with satisfactory results.

The use of arsenic in neuropathic conditions is, of course, not entirely new, since it was long ago advocated for herpes zoster of the skin. Its beneficial action here is not so obvious, because it is comparatively slow in manifesting its effect. If administered early, however, it might be expected to prevent the disease from becoming unusually prolonged. Then, too, almost thirty years ago Kipp[2] stated that he had given arsenic, in medium doses, in many cases of malarial keratitis with very beneficial results.

What has been said so far in regard to treatment has applied especially to neuropathic cases uncomplicated by infection. It is noteworthy, however, that I have not had infection occur in a single case after the holocain treatment was begun. On the other hand, I have seen several patients with infected ulcers and hypopyon recover promptly under this treatment alone; in fact, I have found this treatment advantageous in all forms of ulcerative keratitis in which it has been tried, whether on an evident neuropathic basis or not. In cases of ulcus serpens additional measures have been required, such as cauterization and the Saemisch operation. The holocain treatment has proved most efficient also in cases of keratitis from acne rosaceæ.

While I have no doubt of the value of holocain in the treatment of neuropathic keratitis, when used in the manner described, it is possible that its therapeutic effect may be dependent, in part at least, on some principle other than that which led me to employ it. Certainly the anesthesia produced in a normal cornea by one instillation of holocain does not persist two hours, though it is possible that its effect on nerves constantly irritated may be more lasting. The possibility must be considered that its action may be directly on the tissues, especially on the epithelium. As is well known, solutions of any of the local anesthetics, when repeatedly instilled into the eye at short intervals, produce decided pathologic changes in the epithelium, leading even to necrosis.[15] It may be, therefore, that holocain in a 1 per cent. solution, used every two hours, acts as a stimulant to the tissues. I am in a position to state positively, at any rate, that it does not harm the epithelium even when used in this way for several months, and that erosions of the cornea are rapidly repaired under its use.

NEUROPATHIC IRITIS

In cases of neuropathic keratitis the iris is not infrequently involved. Usually the iritis is of a mild type and the synechiæ give way readily, but in exceptional cases it may predominate over the keratitis. It is known also that iritis may occur in herpes zoster ophthalmicus without involvement of the cornea. There can be no doubt, therefore, that iritis may be produced by the same factors that give rise to neuropathic keratitis. This naturally raises the question whether or not neuropathic iritis may occur unassociated with either keratitis or skin eruptions, that is, without any obvious indication of its neuropathic origin.

I have seen several cases in which I believed that this condition might have existed. Of these I have records of four. In three of these the diagnosis was based chiefly on well-marked hypesthesia of the cornea. In one case, although the cornea remained practically clear, at the end of a week the fluorescin test showed an area of faint green staining apparently just beneath the epithelium. In two of the cases slight fluorescin staining was obtained when first seen. In two of the three cases the onset was with intense supraorbital neuralgia. The fourth case was more suggestive still. In this there had been an attack of superficial punctate keratitis six weeks previously which had responded promptly to the holocain treatment. After an interval of about four weeks a herpetic eruption appeared on the lip on the same side. Two weeks later the patient came to see me, complaining of the most intense neuralgia which had come on abruptly in and about the eye. There was much

15. The relative toxicity of various local anesthetics has recently been studied by Guillery (Die Bedeutung der Anästhetica für die Behandlung der durch Aetzgifte entstandenen Hornhauttrübung, Arch. f. Augenh., 1908, lxi, 38). Under the conditions of his experiments holocain, 2 per cent. solution, seemed the most toxic of all. His results, however, are of limited significance from a therapeutic standpoint, since different results might well have been obtained by varying the concentrations of the solutions and the frequency of their instillations. Other factors, also, such as duration and rapidity of action, here require consideration.

photophobia and marked conjunctival and ciliary injection. The iris was discolored and showed synechiæ, which, however, readily gave way under atropin. There was no hypesthesia of the cornea and the fluorescin test was negative, although the punctate opacities from the previous keratitis were still visible.

While these cases may show that neuropathic keratitis occurs without keratitis, they give no indication of its frequency. It is obvious that should cases occur without hypesthesia and without the circumstantial evidence afforded by the last case, the correct diagnosis would be difficult if not impossible to make. They would naturally be classed as cases of rheumatic iritis, which brings up the question whether many cases so called are not neuropathic in origin. In regard to this I have not sufficient evidence to venture an opinion. In view, however of my satisfactory results in the treatment of patients in intractable cases of neuropathic keratitis with arsenic, it would seem well to try this treatment in any case of iritis of unknown etiology which failed to respond to the usual methods.

NEUROPATHIC CONJUNCTIVITIS

As is well known, in neuralgia of the fifth nerve from any cause there may be hyperemia of the conjunctiva. This is clearly analogous to the conjunctival hyperemia occurring in association with neuropathic keratitis, and no doubt due to the same cause. It may be so marked as to be mistaken for an infectious conjunctivitis, but the neuralgic pain and the lack of purulent secretion usually make the diagnosis easy. In some cases there is hypesthesia of the cornea and conjunctiva. Not much reliance, however, can be placed on a test of the sensibility of the conjunctiva, because normally it is not very sensitive. Other forms of conjunctival hyperemia, such as that due to reflex irritation from the nasopharynx, will not be considered here, since they are not dependent on actual lesions of the fifth nerve. The hypesthesia of the cornea in cases of xerosis suggests a neuropathic basis for this rare condition. This is supported by a pathologic examination made by Circione.[16]

Within the past two years I have come to recognize another condition of the conjunctiva as neuropathic, to which I desire to call especial attention. It is not uncommon and is usually designated by the broad term "episcleritis," under cover of which our ignorance in regard to several ocular affections has frequently been hidden. The condition manifests itself as a localized area of congestion in the center of which the conjunctiva is swollen into a more or less definite nodule. There is also a variable amount of general conjunctival hyperemia. The epithelium over the nodule may be apparently normal, but at some stage it will usually stain with fluorescin. In some cases the surface of the nodule becomes eroded or ulcerated. The nodule may be situated anywhere on the bulbar conjunctiva, not infrequently exactly at the limbus. When in the latter situation the contiguous corneal tissue is apt to be hypesthetic, show localized cloudiness, and stain with fluorescin as in neuropathic keratitis. I have never recognized the condition on the palpebral conjunctiva. The duration is variable, generally from one to six weeks.

My evidence that this is a neuropathic condition, usually analogous to herpes febrilis corneæ, can be presented, perhaps, most briefly by stating the essential features upon which I based the diagnosis in sixteen consecutive cases seen during my last service of four months at the infirmary.

CASES OF HERPES OF BULBAR CONJUNCTIVA

One case: neuralgia and corneal hypesthesia.
One case: corneal hypesthesia, neuropathic keratitis, edema of eyelids, coryza.
One case: herpes labialis, coryza.
One case: neuropathic keratitis in other eye, lead colic.
Three cases: corneal hypesthesia.
Two cases: coryza.
One case: corneal hypesthesia, herpes facialis.
One case: neuralgia, corneal hypesthesia, marginal keratitis.
One case: herpes zoster ophthalmicus, marginal keratitis and hypesthesia.
One case: dendritic keratitis, bronchitis.
One case: marginal keratitis punctata, herpes labialis, coryza.
One case: marginal keratitis, and hypesthesia, bronchitis, herpes labialis.
One case: characteristic conjunctival lesion alone.

The case in the above list in which there was neuropathic keratitis in the other eye, it seems to me, was especially significant. The patient had slept in a freshly-painted room for three weeks and during the third week was taken with severe "cramps in the stomach," apparently lead colic. About one week later when seen by me the left eye presented typical neuropathic keratitis with hyperesthesia, while the right eye showed the conjunctival condition described, situated a short distance from the limbus. Both conditions practically disappeared in three weeks under the administration of potassium iodid.

In the list of cases, by "marginal keratitis" is meant the keratitis localized about the conjunctival nodule at the limbus. I have never seen this extend far into the cornea, probably because of the fact that the cornea and conjunctiva are supplied chiefly by different nerves, the cornea by the ciliary, and the conjunctiva largely by the supraorbital and infraorbital nerves. The conjunctival nerves, however, partly supply also the periphery of the cornea,[17] thus accounting for the extension of the conjunctival lesion into the latter.

As already stated, this condition of herpes of the bulbar conjunctiva is usually diagnosed as "episcleritis" and therefore not clearly differentiated from tuberculous scleritis or sclerokeratitis. It may also be mistaken for a large phlyctenule, especially when ulcerated, and probably it will not always be possible to avoid this error. I have always regarded with suspicion the alleged large solitary phlyctenules situated some distance from the limbus, and I am now inclined to believe that they are invariably of neuropathic origin.

When occurring in well-marked cases of herpes zoster ophthalmicus the neuropathic origin of the condition under consideration is, of course, evident. In this connection it is interesting that Wilbrand and Saenger[1] state that a "true episcleritis" may occur in herpes zoster. Judging by the description, the condition referred to would seem to be identical with that observed by me.

In the treatment of herpes of the bulbar conjunctiva the same measures are evidently indicated as in neuropathic keratitis. Practically, however, I have found that treatment is seldom required except when the cornea

16. Cited by Wilbrand and Saenger: Die Neurologie des Auges, ii, 51.

17. This possibly explains why a ring of epithelium is left on the cornea in severe cases of neuropathic keratitis. It suggests also a neuropathic origin for certain marginal ulcers.

is involved. Where the conjunctiva is alone affected and the subjective symptoms are negligible, it seems unnecessary to put the patient to the inconvenience of wearing a bandage, since there is no danger of serious infection and no scarring is to be feared as in the case of keratitis.

233 Charles Street.

ABSTRACT OF DISCUSSION

DR. W. ZENTMAYER, Philadelphia: Dr. Verhoeff's observations have been made with great care and unusual acumen, and on these observations he reasons logically, and to me, in some instances, convincingly, to sustain his views. To those who have found the want of anatomic proof of the existence of trophic nerves a strong objection to the acceptance of the trophic origin of these affections, he has advanced a plausible theory to explain the causation of these lesions through the sensory nerves. While I have nothing to advance in criticism but what Dr. Verhoeff has doubtless carefully considered and rejected, I wish to bring forward such thoughts as have seemed to me as possible objections, but for which I have no doubt Dr. Verhoeff will have satisfactory answers. Regarding neuroparalytic keratitis, the diversified combination of conditions recorded, the different types of corneal lesions found and the differences in the pathologic findings in the few cases which have been examined microscopically, are the material out of which the several theories thus far advanced have received support, and notwithstanding the strong evidence for the neuropathic theory the majority of writers still hold to the traumatic theory or some modification of it. As Dr. Verhoeff has pointed out, this question is thoroughly threshed out in Wildbrand and Saenger, and it would be a waste of time to bring forward the various arguments that have been advanced in support of the different theories to rebut Dr. Verhoeff's position, so that I shall simply mention the bearing of the pathologic studies that have been made and state the results in some recent research work. In two of the three cases in which microscopic examinations have been made (de Schweinitz and Treitle), the findings were those of a purulent keratitis, rather favoring the mycotic theory. In a recent study of a series of 21 cases of extirpation of the Gasserian ganglion for trifacial neuralgia, in 11 of which keratitis developed, Davies and Hall found in all an unknown bacillus whose presence seemed necessary for its production, but dependent on another factor, the eyelids, which was removed if they were kept closed. As Dr. Jackson says: "In the present state of our knowledge a rational view seems to be that disease or injury involving the trunk or the ganglion of the fifth nerve causes or predisposes to corneal disease partly by an obscure irritative influence and partly by favoring traumatism."

As to keratitis disciformis, such evidence as we have, aside from clinical deduction, favors the view of Fuch's that it is due to infection by micro-organisms of less virulence than those of abscess. While it is true that Meller's specimen was so complicated by conditions which supervened on the disciform keratitis that the deductions drawn from it are in a measure impaired, as it is the only specimen thus far examined, and as the findings support Fuch's contention, it is significant. Animal experimentation and clinical observations in which infection was the undoubted cause of lesions similar to keratitis disciformis have been recorded by Schirmer, and Zur Nedden records a case which went on to ulceration, the streptothrix recovered producing in rabbits an ulcerative hypopyon. It would seem to me that such evidence should have weight. If, as Peters states, the neuropathic element is responsible for the characteristics of serpiginous ulcer, and if, as Dr. Verhoeff believes, a large percentage of all cases of ulcerative keratitis be due to infection of lesions of a like origin, one would expect more of these cases to be of the serpiginous type. I have always looked on the large solitary phlyctenule situated some distance from the limbus as an ordinary phlyctenule with unusual infiltration of the loose cellular tissue between the conjunctiva and sclera in a person subject to lymphatic enlargements and rather expected to see it finally classified as tuberculous. Recent evidence furnished by serum diagnosis is indicative of the correctness of this view. The associated conditions which Dr. Verhoeff has found are, however, very suggestive of it having a neuropathic origin where such conditions coexist, but so far as the individual characteristics of the lesions are concerned they do not seem to me to be of value at arriving at this conclusion. I can confirm what Dr. Verhoeff has said as to the value of holocain in the treatment of superficial erosions. It has been my practice, to prescribe holocain in the conditions under consideration, in corneal ulcerations and after the removal of foreign bodies from the cornea, but in so doing I was impelled not by the pathology of the affection, but because of the desire to use an anesthetic which would allay irritation, and while possessed of antiseptic properties would not at the same time act injuriously on the epithelium of the cornea.

DR. F. H. VERHOEFF, Boston: Dr. Zentmayer has taken issue with me on so many points that it would be impossible to attempt to reply to him in the limited time at my disposal. However, I think my paper itself is a sufficient reply. In regard to the question of the infectious origin of certain of these cases, the mere presence of micro-organisms in the eroded areas is of no significance, since they are clearly secondary invaders. I was, of course, familiar with the recent work of the English observers who claim that the neuroparalytic keratitis following extirpation of the Gasserian ganglion is due to bacilli, but I did not consider it worthy of comment. The bacilli they found were evidently the ubiquitous xerosis bacilli, to which have been attributed almost all diseases on earth.

TREATMENT OF OCCUPATION NEUROSES AND NEURITIS IN THE ARMS*

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In this brief paper is given personal experience in treating over forty cases of sensory and motor disabilities of the arms, the basis of which is usually a neuritis, mild or severe. Most prompt and thorough results are obtained by the personal attention of the physician, proceeding on the lines of:

1. Constitutional regulation, uses of drugs, etc., adapted from the interpretations of Dr. Sajous.

2. Relief of psychic hypertension or misdirection by educative persuasion. Relaxation is needed of the whole organism, as well as of the parts damaged. Economies in the expenditure of forces should be judiciously taught.

3. Quieting of the irritated vasomotor subcenters and also improving their nutrition by influencing the reflex vasomotor reactions, through manipulation of the paravertebral tissues; to be achieved by: (a) Determining by touch the degree of irritation or exhaustion shown by tenderness, infiltration or alterations in morphology of the structures lying adjacent to those segments of the cord in which the arms, etc., are innervated; (b) employing the kind and degree of hand pressure by which these subcenters shall be repaired; (c) relieving sensory disturbances by these same carefully distributed pressures; (4) stroking the lymph channels and the affected nerve paths, thereby relieving local stasis, freeing nerve sheaths and other structures from local hyperemia, toxic wastes, etc.; (5) stretching the limb by carefully graduated and increasing force along with torsions (this can be safely done only by the physician, and, when judiciously performed, affords one of the

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most efficacious means of relieving pain, aches, heaviness and restoring vigor); (6) re-education in co-ordination, which should be carried on for months or years, by personal effort as well as under supervision, to make sure of complete restoration.

No matter what measures may be employed to relieve the pain (special electric currents or other), unless this motor education is wisely pursued the radical cure may be compromised.

PRINCIPLES OF ACTION

In dealing with the problems of arm pains, disabilities both sensory and motor, occupation neuroses, "writer's cramp," and like disorders, success is obtained in proportion to the exact appreciation and correction of the underlying faults, which are both psychic and physical.

My chief object is to offer to practitioners measures which each one can readily apply—principles of action by the use of which prompt and permanent cures can be effected. It is true, indeed, that from the use of elaborate equipments in electricity, or long specialized systems of treatment at spas, in rest-cures, radical changes in lines of occupation, excellent results often follow. These, however, are expensive in time and money. They often fail. It is a common experience to find patients gravely discouraged who have run the gamut of protracted and costly treatments. Several of my cases were of from two, three or many years' duration, wholly unrelieved. Some of the worst conditions were cured in a month.

The factors most forceful in relief were found in the outline given above. Long experience in psychoanalysis and moral orthopedia has taught me the efficacy of persuasion or educative measures. Next in importance is a study of the conditions through a specialized knowledge gained by estimating abnormalities in local tension and sensitiveness. Facility in these can be acquired through practice. It is my opinion, often expressed, that physicians have neglected a most important field of diagnosis and treatment. This lies in the manipulation of structures, in the education of the hands so that they shall perceive and appreciate all those factors which the surgeon utilizes and a good deal more. The surgeon is content to learn the grosser differences which indicate such diseases and derangements as come within the sphere of his interests. The physician should be able to go much further and become an acute percipient of finer distinctions, of divergences from the norm. This is analogous to those more subtle data on which are built the findings of internal medicine.

A long experience in teaching in a postgraduate medical school (the Philadelphia Polyclinic College) has impressed me with the fact that the average well-taught practitioner makes little use of his hands; exhibits, indeed, marked distaste for manipulations; furthermore, that relatively few are equipped with tactile appreciation of morphology, minor differences in resistance, density, temperature, balance, position, tension, relaxation, rigidity, mobility, etc. All these exceedingly significant data, obtainable by means of refined touch, have the most direct bearing on daily problems. They are analogous to the exquisite sense perception usually acquired by the blind, and are within the reach of most, provided one elects to utilize his muscular and touch senses.

Nowadays physicians are losing much of their prestige, and, worse than all, their usefulness, to a group of self-assertive "practitioners" who invade their territories effectively. This is wholly unnecessary. The remedy is to examine every suffering person by touch as well as by stethoscope or laboratory methods.

1. Constitutional Regulation

The underlying conditions of neuritis are due chiefly to agencies which reduce the normal defensive properties of the blood. The phenomena are usually those of hypocatabolism, acidosis, accumulations of uneliminated toxic waste products, autointoxication. There is often a history of gout, syphilis, influenza, malaria, or other disease of a debilitating character, which reacts destructively on the organism, reducing the functional activity of the anterior pituitary body. I follow the teaching of Sajous, which explains and simplifies etiology and pathogenesis and renders precise the therapeutic indications. There is usually evidence of recent exhaustion states, due to overexertion, excessive strain, worries, shock, grief, also the overuse of exogenous poisons, tea, coffee, alcohol, tobacco, etc., which, by lowering vitality, derange all metabolic processes.

Among the commonest exciting causes is cold, especially when one is exhausted; also antecedent infections, e. g., tonsillitis, etc.

Measures are indicated which aid elimination, relieve the causes of neural congestion, of hyperemia, active or passive, in the arterioles of the nerves, the vasa nervorum and their capillaries, including the nervi nervorum; the latter, being swollen, exert a pressure on the surrounding swollen structures, which is the main source of pain; also of the heaviness, loss of power, atrophy, etc. These measures may be summarized as follows:

1. Agents to reduce congestion in the painful areas:

A. Drugs which cause general vasodilatation by depressing directly the general vasomotor center, e. g. sodium bromid, or chloral, or both together, veratrum viride in sthenic cases; the nitrites, etc.

B. Drugs which cause general constriction of the arterioles by stimulating the general sympathetic center, e. g. coal-tar products, morphin, atropin, aconitin, gelsemin, cocain, osmic acid.

C. Local remedies which produce reflex constriction of peripheral nerves by irritating directly the cutaneous sensory terminals, e. g. local application of aconitin, veratrin, ethyl chlorid, menthol, guiacol, cocain, chloral, camphor, galvanism.

D. Measures which provoke direct or indirect depletion of perineural arterioles and, therefore, of the endoneural capillaries, e. g. guiacol to the skin, leeches, venesection, cupping, hydrochloric acid, superheated air, local heat, warm pack to the abdomen, a hot flat-iron to the back, etc., to increase the catabolic activity of the trypsin, as chief agent in activating the auto-antitoxin.

E. Measures which tend to eliminate the causes of the neural congestion. For pain occurring intermittently gross accumulations of toxic materials in the blood should be removed, e. g. by purgatives, the best being castor-oil daily for several days. This increases reflexly the relative proportion of auto-antitoxin in the intestinal juices. One may also employ saline laxatives, careful dietetic regulation, use of physiologic salt solution or "sea-water" to maintain alkalinity of the blood, abundant water-drinking.

F. Drugs to controvert the gouty state by stimulating the adrenal system. Sodium salicylate, strychnin

in full or tonic doses, sodium iodid, colchicum, sodium benzoate. A course of desiccated thyroid (small continued doses) will often accomplish most good.

2. Relief of Psychic Hypertension

This subject has been sufficiently presented in the outline above.

3. Treatment of the Irritated Subsidiary Centers by Manual Means

This subject is too large for thorough presentation here; the outline of a few essential points must suffice. When there is active pain in the arms there will usually be found tenderness in the paravertebral tissues adjacent to the vasomotor subcenters from which the part is innervated. If the disability has become chronic and the only pain is the distressing ache which follows use, there will be found infiltration and thickening of the paravertebral tissues; disturbances in the alignment of the vertebræ (apparent, not real, due to divergences in nutrition of the structures involved) and these will return to normal morphology and sensitiveness on judicious hand treatment.

When there is hypersensitiveness in the continuity of the nerve gentle friction along its course will quickly and amply relieve it. If it be exquisitely tender, the procedure should be to quiet the center (a) by gently maintained (distributed) pressure; and (b) by gently maintained distributed pressure at the locality in the nerve; later (c) by frictions along the nerve sheath.

4. Stroking Lymph-Channels and Affected Nerve-Paths

Chronologically this is among the first of the indicated procedures. It should be performed centripetally and slowly, gradually increasing the pressure (time about two minutes) Afterward the tissues should be grasped with thumb and fingers and the entire limb squeezed, from extremity to shoulder, to remove local hyperemia, vitiated lymph and other toxic wastes, etc.

5. Stretching or Traction

The one point in the treatment of arm pains on which I am enthusiastic is the application of judicious and graduated stretchings.

For a long time surgeons treated neuralgic states, such as chronic sciatica, by cutting down on a nerve, lifting it out of the surrounding structures and subjecting it to rather severe tractions. This procedure is now abandoned, but skilful masseurs know well that it is possible to secure the effects of stretchings by many cunning devices of marked efficacy. A large personal experience convinces me that the physician is better fitted to apply this measure than anyone else. His knowledge of the pathologic conditions existing in a given instance enables him to be both cautious and emphatic as his judgment decides. The phenomena of repair involve not only derangements in the nerve itself but adhesions in adjacent structures, muscle sheaths, blood vessels, lymph channels, etc., etc. Moreover, it is a well-attested fact (to be explained by the neuropathologist) that stretching of a peripheral nerve exerts reparative effects on centers both subsidiary and primary. Where a limb retains power and elasticity enough to encourage voluntary effort we know that the centers can be thus made to improve. Passive movements are also habitually employed with more or less effect in proportion to (a) the degree of damage to the center, and (b) the degree of skill and persistence of the operator. As to how this should be performed demonstrations are better than description.

The methods which I use are these: I cause the patient to relax the muscles completely; seize the wrist by clasping the fingers of both hands, and bring the "heels of the fists" firmly together. This prevents a painful drag on the skin of the patient. I exert traction on the part slowly, to the point of discomfort, and no more; relax tension and place the limb in another position and again pull; relax and change repeatedly until the limb is made to stretch in about a dozen different positions, describing various arcs about six inches apart on the periphery, and completing the normal circle of arm positions at full length (time about two minutes). Of greater nicety is to place one hand of the operator firmly on the shoulder (deltoid, near the insertion), press the humerus down in the socket; to seize the elbow, using the humerus as a lever, and repeat the various arcs. During these movements the humerus is moved about in its socket in divers possible positions. Finally I seize the arm near the head of the humerus and cause it to describe circles in two (first obverse, then reverse) directions, so that all the tissues immediately thereabouts are put upon the stretch (time about one and one-half minutes). Next I exert torsions to include the full limits of motion, holding tense a few seconds at the end. By this time any painfulness is usually removed. Finally, I lift the arm again, as at first, to its full limit four or five times, almost raising the body weight (time complete about five minutes).

The degree of force should be gradually increased, until after two or three weeks (on alternate days) a considerable degree of force can be exerted without marked discomfort.

6. Re-education in Coordination

After each passive treatment it is well to direct the patient to extend the arm and fingers with increasing force, and to hold the tension at the end of the act for three or four seconds; to relax, extend, again hold tense, rotate in various directions; again to extend, hold tense, describing all the normal excursuses.

This series of active movements is not only important to insist on; they should be practiced daily, and later, three times a day for months. Since occupation neuroses are the outcome largely of overuse of the arms in positions of flexion long maintained, this training in extension affords the normal physiologic relief. Furthermore, it is necessary for the motor centers to be stimulated by exciting the extensor reflexes systematically.

Also, since most forms of arm neuritis, especially the protracted and chronic ones, are followed by contractures, and as these are in the flexor sphere, it is essential to overcome them by systematic, forceful extensions, carried on persistently for many months. It will prove a relief to the readily recurring arm aches to insist on the practice of these systematic extension exercises.

By the means outlined any deft physician can relieve or cure most of the motor and sensory disabilities of the arms which present.

1504 Pine Street.

Diagnosis of Tuberculosis.—The early diagnosis of pulmonary tuberculosis should not be beyond the capacity of any physician; furthermore, the responsibility of its early discovery rests on the shoulders of every general practitioner. It is estimated that the patient's chances of recovery are five times greater if the disease is recognized in its incipiency.—C. N. Haskell in *New York Medical Journal.*

ISOLATED AND COMPLETE PARALYSIS OF THE THIRD NERVE OF TRAUMATIC ORIGIN

REPORT OF A CASE *

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Alexander Duane[1] makes the following classification of innervational paralysis of the ocular muscles:

1. Extracranial (orbital or peripheral).
2. Intracranial, comprising:
   - A. Basal and foraminal paralysis.
   - B. Nuclear and fascicular paralysis.
   - C. Supranuclear and cortical paralysis.

We are concerned with Group A, namely, basal and foraminal paralysis.

By basal paralysis we understand one due to lesion of the nerve trunk after its emergence from the brain and before its exit from the skull; by foraminal paralysis, one due to lesion of the nerve as it passes through the sphenoidal fissure.

It is to foraminal paralysis that I wish to direct attention by means of the following case:

AUTHOR'S CASE

For the patient who furnishes the text of this paper I am indebted to Dr. J. W. Putnam of Buffalo, who referred her to me on Oct. 14, 1906.. The record is as follows:

History.—Miss E. W. was 17 years old. Her father had died sixteen years before from some malignant disease of the throat. Her mother was living and well. Two older brothers and one older sister were all in splendid health. There was no neurotic strain in the family so far as known. The patient had had no diseases of childhood except measles when quite young; her menstrual history was normal. She had always been in good health with the exception of a suppurating appendix which necessitated surgical interference eighteen months before the present illness. Her convalescence was rapid and complete. Rheumatic tendencies and attacks, sore throat and recent exposures to cold were entirely absent. There was no history of nervous, gastric or intestinal disturbance; no migraine, no headaches, except after prolonged near use of the eyes. Vision had always been acute.

Present Illness.—Three evenings before the examination, while preparing to attend a reception at a neighboring house, the patient "bumped" her head against a half-open door as she passed from one room to another. The point of injury was at the outer angle of the left supraorbital margin. The force of the blow was not enough to cause more than a passing sting, nor enough to abrade the skin. Disfigurement from possible swelling being feared, a few cold cloths were applied. The patient stated positively that she was neither nauseated, dizzy nor made uncomfortable in any other way, and was equally sure there was no nasal hemorrhage. In fact, the injury was regarded as negligible. Within a relatively short time the patient left the house and attended the reception. A few moments after her arrival a companion asked her why she did not open her left eye. This, the patient thought was about forty-five minutes, and certainly not more than an hour after her injury. The question of her friend was the first intimation of trouble, and it was not until then that the patient discovered her absolute inability to raise the left upper lid. More cold applications were used. The next morning, the ptosis still persisting, the family physician was called, who immediately sent the patient to Dr. Putnam. Putnam's diagnosis was third nerve paralysis; he sent the patient to me for further study, with the assurance that hysteria could be eliminated as a possible etiologic factor, he having gone over the case with this in mind, and also that there were no symptoms of fracture of the skull.

First Examination.—The patient was a well-nourished girl, brunette, and in apparent good health; not of the nervous type. There were no evidences of either congenital or acquired syphilis.

Right Eye: Vision 6/7.5. Upper lid moved freely. Excursions of the globe perfect in all directions. Pupil normal in size (3 millimeters), reacting readily to light and distance. Accommodation normal. The patient read Jaeger No. 1 readily. Field limits (taken roughly), normal. Fundus negative.

Left Eye: No sign of injury about the orbit. No swelling of the lids or evidence of orbital inflammation or infiltration. Complete ptosis of the upper lid. Globe turned outward and slightly downward. Pupil dilated (6.5 millimeters) and immotile.

Accommodation: Paralyzed. Candle test showed diplopia in all fields except downward and outward to the left. Neither the external rectus nor the superior oblique were involved. Vision 6/45 (plus lenses' aid). Field limits (taken roughly) normal. No scotomata. Fundus negative.

Examination of the nose and accessory sinuses, negative. Hearing normal. Urine examination negative.

A diagnosis of isolated and complete paralysis of the left third nerve was made. The patient's hygiene was regulated, and the faradic current applied three minutes daily.

Course of Disease.—Oct. 20, 1906: Ptosis disappearing. Pupil reacted feebly and was less dilated. Some return of motion. Accommodation returning.

Nov. 5, 1906: Ptosis hardly noticeable. Left pupil less dilated (4.5 millimeters). Divergence much less. Accommodation much improved. At this time the visual fields were taken on the perimeter and both were found to be normal for white and colors. (There was no color inversion.)

Nov. 6, 1906: Refraction under homatropin:

O. D. V. = 6/7.5 + 1.25 sp. c. + 0.25 Cy. axis 90 V. = 6/5.
O. S. V. = 6/15 + 2.75 sp. + 0.25 Cy. axis 90 V. = 6/6.

Retinoscope checks.

Dec. 15, 1906: Ptosis had disappeared. Pupil normal size, responding readily to all reflexes. Accommodation normal. (The patient read Jaeger No. 1 at fifteen inches without effort.) No diplopia except when patient was very tired, at which time the left lid also drooped. Maddox rod showed 15 degrees exophoria.

April 24, 1908: The patient returned complaining of headache, especially on the left side. These headaches were directly associated with near use of eyes. The patient had become a student of stenography.

Second Examination.—No ptosis, pupils normal in size, equal, responding readily to all reflexes. Accommodation normal. Maddox rod showed 10 degrees exophoria. Refraction under homatropin:

O. D. + 1.25 sp. + 0.25 cy. axis 90 V. = 6/5.
O. S. + 2.00 sp. + 1.00 cy. axis 45 V. = 6/6.

Checked by retinoscope and ophthalmometer.

April 25, 1908. Headaches had disappeared under lenses ordered.

March 14, 1909: The patient returned at my request for examination. She said she had been very well; had had no diplopia, but complained of left headaches which she thought came from her eyes.

Third Examination.—No ptosis. Pupils equal, normal in size and responded readily to all reflexes. Accommodation normal. Maddox rod showed 8 degrees exophoria in distance and 11 near. Candle tests revealed no paralysis or paresis of ocular muscles.

Refraction under homatropin:

O. D. + 1.25 sp. + 0.25 cy. axis 90 V. = 6/5.
O. S. + 2.25 sp. + 0.25 cy. axis 45 V. = 6/6.

Checked by retinoscope and ophthalmometer.

Fundus negative.

March 16, 1909: Fields taken on perimeter were normal for white and colors.

March 18, 1909: Patient telephoned that headaches had ceased under new correction.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Chapter 5, Posey and Spiller's The Eye and the Nervous System, Philadelphia, 1906.

At no time during the course of these diseases were there violent headaches or other symptoms of a deep-seated lesion.

In passing, it is interesting to note the refraction change which took place in the left eye. The first cylinder was at axis 90 and was + 0.25. Six months later 1 diopter of astigmatism axis 45 degrees had appeared which in turn diminished to a + 0.25 axis 45 one year later.

As to the location of the lesion in this case, it seems to me that one may eliminate with great certainty the question of fracture of the base. The patient was studied carefully with that hypothesis in mind, without the discovery of a single sign or symptom leading to that diagnosis, unless it was, indeed, the palsy of the third nerve. The patient was also carefully looked over with the view of eliminating the hysterical element. Both Dr. Putnam and myself kept this possibility in mind, but in the face of most thoughtful consideration such a diagnosis was discarded. There was nothing in the patient's history or condition to warrant a possible diagnosis of lues. With equal assurance one may eliminate trouble in the orbit, both on account of the absence of physical signs of damage there and because the branching of the nerve in the orbit renders traumatism producing complete paralysis practically impossible. Therefore the injury must have been either intracranial or at the point where the nerve passes through the sphenoidal fissure. In the absence of any symptoms pointing to intracranial trouble, we must select, by exclusion, the sphenoidal fissure as the point of injury. The nature of the process might be either a bruising of the nerve trunk or a subperiosteal hemorrhage of sufficient size to encroach on the nerve but not large enough to injure the other structures, gaining entrance into the orbit through this opening. It must be assumed that the branching at the nerve took place at or near the fissure. In point of the former hypothesis I quote from M. Allen Starr's[2] text-book the following: "Severe falls and blows on the head have been known to cause bruising of the nerve against the sharp edge of the sphenoidal fissure." Fracture of the wing of the sphenoid at the fissure must also be considered. From the viewpoint of the symptomatology it seems that the subperiosteal hemorrhage hypothesis is most attractive. The fairly sudden onset and gradual clearing up of the symptoms might easily correspond to the absorption of a blood clot.

CASES IN LITERATURE

A systematic and thorough canvass of the literature since 1870, extending through the *Index Medicus,* Index-Catalogue of the Surgeon-General's Library at Washington, current ophthalmologic journals, many text-books, both ophthalmologic and neurologic, and a careful search of Nagel's *Jahresbericht der Ophthalmologie* for the past thirty-nine years, convince one that isolated and complete traumatic paralysis of the third nerve of neither intracranial or orbital origin is rare. I have been able to find the following nine cases, which I have briefly abstracted:

CASE 1.—M. Fleury de Clermont[3] in 1862 reports a case of paralysis of the third nerve following a fall on the head.

A farmer, 24 years old, fell from a wagon, striking his left temple on the ground. Complete and isolated paralysis of the left third nerve followed. Recovery was rapid under no other treatment than blistering. There was no evidence of fracture of the skull. (This case is quoted from Chevallereau[4].)

The following six cases are reported from Girardot:[5]

CASE 2.—Reported by Desgouttes and Mueller.[6] Antoine C., aged 41, fell, striking on the right parietal eminence. Total isolated paralysis of both third nerves resulted. There was no evidence of fracture of the skull. Recovery took place in one month.

CASE 3.—Reported by Desgouttes and Mueller. Julian G., 18 years old, fell on the head, striking on the right occipital region. Loss of consciousness and complete isolated paralysis of both third nerves followed. There were no signs of fractured skull. Recovery took place in three weeks.

CASE 4.—Reported by Durand and G. Gayet.[7] Augustine P., 8½ years old, fell on the head. Loss of consciousness followed and complete bilateral and isolated paralysis of third nerve appearing in one and a half hours. There was no fracture of the skull. Recovery took place in sixteen days.

CASE 5.—Reported by M. Ferron.[8] M. G., age not given, veterinary surgeon, fell from a horse. Bilateral paralysis of third nerve followed, but disappeared rapidly except slight diplopia and lowered accommodation persisted. There were no evidences of fracture of skull.

CASE 6.—Reported by Rothe.[9] Miss D., aged 17, fell from a horse. Loss of consciousness and complete and isolated paralysis of third nerve ensued. There was no fracture of the skull. Complete recovery took place after four months.

CASE 7.—Reported by M. Ferron[8]. William F., aged 43, fell on his head. Loss of consciousness followed. There was no evidence of fracture of skull. Complete and isolated third nerve paralysis resulted. Recovery was complete after three months.

CASE 8.—J. E. Weeks[10] reports the instance of a young man who was struck one-half inch below the inner canthus on the right eye by a fencing foil, which had pierced his mask. The wound was slight. There was no loss of consciousness. On the following day there was complete paralysis of all structures supplied by the right third nerve. In his remarks concerning the pathology of this case Dr. Weeks says that he thinks it very probable that there was a subperiosteal hemorrhage at the place where the nerve passes through the sphenoidal fissure. Whether there was a fracture of the wing of the sphenoid at this point or whether a rupture of a subperiosteal vessel he does not attempt to decide. Recovery took place in about fifty days.

CASE 9.—M. Allen Starr[2] speaks of a patient in his own observation who had a sudden third nerve paralysis following a fall on the head while alighting from a carriage. After six months' duration recovery was complete.

In all the cases quoted above, with the exception of Case 9, in which no detailed history is given, the individuals were in good health with no luetic histories.

DOUBTFUL BUT POSSIBLE CASES IN LITERATURE

In addition to the nine cases quoted I have found in the literature the following five cases, which are possibly to be grouped as true cases, but which present features making one suspect etiologic factors other than foraminal paralysis. That of Goldschmidt[11] was placed by Girardot on his list, but seems to me to be doubtful on account of the difficulty of eliminating basal fracture with certainty.

CASE 1.—Reported by Goldschmidt.[11] A young man, aged 21, suffered a gunshot wound in the mouth. Several hours later complete and total paralysis of the third nerve presented itself. Goldschmidt does not speak of the result or say whether there were symptoms of basal fracture. (Classed with doubtful cases on this account.)

2. Organic Nervous Diseases, Philadelphia, 1907, p. 647.
3. Fleury de Clermont: Bull. Soc. de chir., séance du 31 Dec., 1862.
4. Chevallereau, Armand: Recherches sur les paralysies oculaires consécutives a des traumatismes cérébraux, Paris, 1879.
5. Girardot, Charles: Paralysies traumatiques isolées et complètes du nerf moteur oculaire commun, Lyons, 1903.
6. Revue gén. d'ophth., April, 1903, p. 152.
7. Arch. prov. de chir., March 3, 1901, p. 325.
8. Thesis, Lyons, 1901.
9. Memorabilien, 1876, xxi, 411.
10. A Case of Injury to the Motor Oculi Nerve Followed by Paralysis, New York Ophth. Rec., 1897, vi, 174.
11. Wien. med. Wchnschr., 1893, xliii, No. 7.

CASE 2.—Reported by F. Denti.[12] A man, 38 years old, while intoxicated, fell from steps and sustained a total paralysis of the right ocular motor. (There was no report as to whether there was involvement of other nerves or as to whether there was fracture of the skull.)

CASE 3.—Reported by Gaupillat and Regnault.[13] A young soldier, while fencing, was struck in the inner angle of the eye by a bayonet, making a very slight tearing of the conjunctiva. The patient was much depressed, fearing loss of sight. The eye was immovable; the pupil dilated; accommodation absent; light perception only. All unfavorable symptoms passed away and the question as to hysteria as the factor arose. (The loss of vision makes a diagnosis of hysteria possible, especially when taken with the patient's mental depression.)

CASE 4.—Reported by Prof. J. Komoto.[14] A boy 4 years old was injured twenty-five days previous to having been seen. He was struck on the upper left side of the forehead by a falling wall-clock. There was no loss of consciousness or vomiting. There was a left ptosis. The eye turned out and down. The pupils were normal. Recovery, except slight ptosis, took place. On account of the non-involvement of the pupil the diagnosis of nuclear paralysis is probable. It is possible that had the case been seen immediately after the injury, paralysis of the contractor fibers of the iris would have been noted.

CASE 5.—Devoe[15] reports a case of double third nerve paralysis following an accident. Devoe believed that the cause was hysterical. Recovery. (The details of this case are so meager that it is impossible to class it definitely. Fracture of the skull is not eliminated or paralysis of other ocular nerves.)

In conclusion I can do no better than translate verbatim the conclusions of Dr. Girardot's admirable thesis on this subject:

1. Traumatic paralysis of the motor oculi are rare, especially when one takes into consideration the frequency of palsies of the ocular muscles.

2. The anatomic relations of the motor oculi with the base of the brain are such as to make laceration or compression by bone lesions easy. Indeed, it is not uncommon to see paralysis of the motor oculi associated with those of the facial, or patheticus or abducent and following fractures of the skull, but the isolated paralysis of the third nerve are independent of fractures. They are, probably, due to a hematoma located about the nerve or in its sheath.

3. From the standpoint of the symptomatology there is nothing of special interest, except that they are isolated and complete.

4. Admitting compression by hematoma it does not seem that surgical interference is justifiable, for though the process be a slow one, recovery occurs spontaneously in about two months.

482 Delaware Avenue.

ABSTRACT OF DISCUSSION

DR. WENDELL REBER, Philadelphia: I think this Section is indebted to Dr. Francis for a very careful study of a rare and interesting condition. The fascination in this kind of case is to find the site of the lesion. We see many isolated third nerve palsies, but isolated traumatic ones are rare indeed. Isolated palsies of the sixth or fourth nerve are common enough, such palsies of the fourth being most frequent after operation on the frontal sinus and of the sixth being an accompaniment of even minor fractures at the base. In diagnosing this case it is extremely important to exclude hysteria, and I think this has been done. Tuberculosis and syphilis have also been excluded. Hysteria, however, because of the suddenness of the phenomena, was the likeliest complication. This was hardly a hemiplegia, because there were no symptoms to account for it. There were no intracranial symptoms of any moment, and there were no basal symptoms, so that by exclusion we are practically forced to assume that it was a fracture at the sphenoidal fissure with a simple hematoma. The one weak point in this diagnosis is that the hematoma should be so perfectly and beautifully limited as to impinge on to only the third nerve, and yet by exclusion it seems to me we are justified in making that diagnosis.

12. Paralisi completa, periferica, traumatica del ter 20 pago del nervi cranici di destra, Ann. di Ottal., xii, 562.
13. Clin. Ophth., Feb. 25, 1908.
14. Nippon Gankwa Gakukwai Zasshi, viii, No. 1.
15. Semaine méd., 1890.

PRACTICAL IMPORTANCE OF HYPERPHORIA

IN PRESCRIBING LENSES FOR USE AT PARTICULAR DISTANCES AND IN DIFFERENT DIRECTIONS *

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Hyperphoria, when the head is in the primary position and the test object on the line of intersection of the extended median and horizontal fixed planes of the head (Savage), has received considerable attention by many able investigators. This paper will deal more particularly with hyperphoria at the reading distance and at the reading angle. The prescribing of prisms to correct hyperphoria is of great importance. The correction of 1 degree of hyperphoria, constant at a series of examinations, will give in the average case better results than the prism correction of a very much greater degree of exophoria or esophoria. Normal eye muscles have difficulty in overcoming a 3.5 degree prism base up or down, while adducting power of 50 degrees is often found. Normal eyes have vertical equilibrium. If a series of examinations shows 0.5 degree of hyperphoria, decentering of the lens or the introduction of a prism is usually advisable.

The degree of hyperphoria is often extremely variable at different examinations and even at the same examination. Sufficient time should be given for the patient's eyes to be disassociated, as those who have a strong fusion faculty may at first attempt to combine the two images, even if they are unlike, as the light and streak with the Maddox rod. In some cases the eyes are very loth to disassociate themselves and to rotate independently. A first hurried examination may show no heterophoria but later examinations an increasing amount. The screen, parallax and other tests are sometimes necessary. Cycloplegics by their effect on accommodation, and I think, by direct action on the external muscles, sometimes seem to aid in unmasking latent heterophorias.

After determining the proper lens for each eye separately and after repeated examinations of the hyperphoria have shown a nearly constant amount, the prism is tested in the properly placed and centered trial frame while the patient looks at the distant test chart. Patients will frequently at first reject a much-needed prism placed for only a short time in the trial frame. It is necessary to take sufficient time, that the eyes may adjust themselves to the new conditions. When needed the patient will prefer to retain the prism, as its removal necessitates quite an effort for adjustment. It is often helpful to learn in which part of the test, putting on or taking off the prism, the patient experiences greater difficulty or requires more time to make the adjustment of his eyes. If it takes longer to adjust the eyes on removing the prism it is very likely that a prism is required.

If the hyperphoria found is less than 2 degrees, I usually prescribe the equivalent in degrees by decenter-

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

ing or prisms. When more than 2 degrees is present, I depend on comfort tests of prisms in the trial frames and do not, like many, always undercorrect. However, a 2.5 degree prism is usually selected for 3 degrees of hyperphoria and a 3 degree prism for 4 degrees of hyperphoria. There can be no fixed rule; each patient must be carefully tested. Hyperphoria of over 6 or 7 degrees, which is usually non-comitant or changeable (Duane), can seldom be comfortably corrected by prisms. Low degrees often occasion more discomfort and fatigue than high degrees because no attempt is made to overcome the latter. My operative experience has not been sufficient to enable me to determine definite policies in these cases. Prism exercises are sometimes helpful.

Many observers, recognizing the close relationship between accommodation and convergence, have studied exophoria and esophoria not only at the distance but in accommodation. It has been found that the excess or insufficiency of convergence (so-called), especially that found when fusion is entirely prevented, accommodation alone being active, varies greatly from the degree of esophoria or exophoria for the distance. A separate test is advisable before prescribing lenses for the reading or any special distance. Likewise hyperphoria for the near may vary from that at the distance as illustrated in a case by Theobald. Clinically it is more difficult to overcome a certain degree of hyperphoria for near than the same amount for distance. Not only is hyperphoria sometimes found to be variable at different distances, but the degree may also vary if the head be tilted up or down so that the eyes in looking at a distant fixed light are compelled to rotate in a different plane. Many of these cases are partial paralyses of the vertically acting muscles. Duane believes that many cases of hyperphoria are the result of paralysis. He classifies heterophoria as non-comitant, changeable, and comitant, also as periodic or continuous for near and far; Maddox classifies it as paretic and simple or con-comitant. In a considerable number of cases the hyperphoria varies, sometimes several degrees, depending on whether the eyes are in the primary plane or looking upward or downward. If hyperphoria at the distance sometimes varies in different planes, it would seem not unreasonable to suppose that a variation could also occur at the reading distance.

I have had an instrument made by the DeZeng Standard Co. of Philadelphia, to test the hyperphoria for near at various angles indicated on the instrument. The area of light through ground glass is controlled by a rotating disc with holes of various sizes. The light can be moved to any desired distance from the eyes. The Stevens phorometer in connection with the Maddox rod is employed so that the amount of heterophoria is easily indicated. If an amount in excess of that registered on the instrument is present, a clip is provided in which an extra prism from the trial case may be placed. The instrument may be used for distant muscle testing by using a distant light, it being unnecessary to remove the small lamp which, however, can be easily done. The convergence near point for a light may also be easily tested by this instrument on which the meter angles of convergence are also indicated. The lamp may be removed from the shaft of the instrument and used to examine the field of projection when the media are not clear, e. g., in cataract cases.

At the distance the primary horizontal plane is the most important. The best plane for near testing corresponds with that in which the patient usually directs his eyes in near work. This varies, generally in making an angle of about 30 degrees with the horizontal plane. In quite a number of cases the hyperphoria at this angle, more or less constant in several examinations, varies several degrees from that found in the horizontal plane in near or distant tests. As would be expected in paresis, the hyperphoria sometimes changes if the instrument is moved from side to side. Some patients with orthophoria at the distance show two, three or four degrees of hyperphoria at the reading angle. Right hyperphoria at one angle sometimes becomes left hyperphoria at another. Patients will often suffer discomfort if they do not have prisms of different strength in their lenses for distance and for reading. Many such can not wear bifocals (unless perfection with appropriate prisms) because the hyperphoria is not the same for the distance as for near. Some with their hyperphoria properly corrected in separate lenses for near and far are greatly benefited.

It is also important to consider the prismatic effect of lenses when the eyes look through them in different directions. Duane states that he has found hyperphoria present in 15 per cent. of low cases of anisometropia, and in 32 per cent. of high cases. Bruner has found hyperphoria in 30 per cent. of cases of anisometropia. Imagine a patient with anisometropia with a nearly plane lens before one eye and a strong sphere or a strong cylinder at axis 180 before the other. In such a case without hyperphoria in the primary plane, if the patient moves his eyes behind the lenses from the primary to the reading plane or *vice versa,* he has to overcome in all positions but one, a large degree of what may be termed artificial lens hyperphoria, which is often very distressing and one of the common reasons why it is difficult to give these patients relief. Separate distant and reading lenses or half grab-backs or grab-fronts with correct centering for a particular plane should more often be prescribed in anisometropia and antimetropia. If the lenses are strong great care should be used to see that they are properly centered. It is often easy to bend the frames up on one side and down on the other to center the lenses better for distant objects. In cases of anisometropia with proper lenses and frames before the eyes, I teach the patient by having him tilt his head up and down, that there is only one easy position in which to hold his head in order best to see distant objects. He is directed to hold his head so that it will be easiest for his eye muscles. The person receiving reading lenses of different strength is taught that there is not only a proper distance for his close work but also that it should be held at a particular angle. An anisometropic patient whose lenses are quite different must learn how to hold the head and the best position for the object looked at if he is to derive the greatest benefit.

Many who use bifocals, since they are often compelled to look through their lenses at a strong angle, are made uncomfortable, not only by the changed astigmatism, but also because the hyperphoria, artificial or true, at that angle is not considered. I now test all patients at primary and reading angles without lenses and with them, and as a result sometimes prescribe two pairs or perfection bifocals containing different prisms where I used to prescribe unsatisfactory cement bifocals. Since hyperphoria is changeable,

its degree should be retested at intervals, especially if there is any discomfort in using the lenses.

Before this Section, it is unnecessary to be specific in outlining a policy in these varied and changing conditions. Each case must be a law unto itself, but this changing true or artificial hyperphoria with or without lenses deserves more attention.

Everett Building.

ABSTRACT OF DISCUSSION

DR. ALEXANDER DUANE, New York: As Dr. Stevenson states, the detection of hyperphoria frequently requires repeated examinations. Genuine hyperphoria may escape notice because it is slight or because it is latent. On the other hand, at the first examination a hyperphoria may be simulated when none exists. In the one case a true hyperphoria is concealed and in the other a false hyperphoria is produced by temporary spasmodic action of the muscles. It may then require repeated tests to show whether the habitual condition is one of orthophoria or the reverse. In cases of doubt, the use of experimental prisms, as suggested and followed by G. T. Stevens, may clear up the diagnosis. Thus suppose two patients present themselves, each with a hyperphoria of ½°. In one this minute amount may represent a real deviation of 1° or 2°, the hyperphoria being nearly all latent. In the other the ½° may represent all the deviation that there is, or there may be no real deviation at all, the hyperphoria being spurious. In the first patient the finding is of much significance, in the second none. If each patient is made to wear a 1° prism for a day or two, the first patient will not only feel comfortable with the correction but after wearing it will show hyperphoria in excess of the prism prescribed. The second patient will find the prism annoying and a re-examination will show no more hyperphoria than at first, *i. e.*, the prism will be overcorrect. A trial prism of this sort may be made up in the office in a spectacle frame, or be added as a "grab front" to the patient's sphero-cylindrical glasses. Still more important than detection of hyperphoria and the evaluation of its amount is the determination of its cause. A hyperphoria due to insufficiency of a depressor causes much more trouble than one due to insufficiency of an elevator or than one which is completely comitant. I have recently collected a large number of cases of very slight insufficiency of the inferior rectus, in which the symptoms, asthenopia, and less often vertigo, were very marked and persistent, the patient frequently being unable to use the eyes for near work in spite of the most painstaking correction of the refraction, and yet for distance the eyes could be used without discomfort. In such cases and, indeed, in all kinds of hyperphoria, the determination of the distribution and the amount of the diplopia in the outlying portions of the field of fixation afford invaluable aid. Such a determination ought to be made in every case of hyperphoria and in fact whenever the muscles are examined at all, for it often happens that in these very cases there is no hyperphoria whatever in the primary position.

Treatment comprises: (a) General corroborative measures. These are required in the hyperphoria of the hysterico-neurasthenic subject. In these cases the hyperphoria varies in amount from time to time. The field of double vision, too, is often very different in area on different examinations and is often disproportionately large considering the fact that the actual separation of the double images is very small. These patients require rest from eyework, proper bodily exercise, and such other general and local treatment as their condition may suggest. (b) Prisms. In comitant hyperphoria these are especially useful and well borne. In hyperphoria due to insufficiency of the inferior rectus, a prism may be incorporated in the reading glass only; or it may be added to the distance glass in the form of a "grab front" (to be used only in reading) or in the form of a "paster." In the latter case the shape and position of the paster should be carefully adjusted to correspond to the field of double vision—the paster in general occupying the outer and lower portion of the glass. I have in this way corrected an insufficiency of both inferior recti, a "paster," each consisting of a prism of 1°, base down, being placed at the outer lower portions of each glass, in this way correcting a condition in which there was right hyperphoria in looking down and to the right and a left hyperphoria in looking down and to the left. One great objection to the "pasters" is that unless ground to a knife-edge they produce a very bad break at their upper margins and consequent monocular diplopia. (c) Operation. Of this I need not speak except to say that in general we resort to operation only when other remedies have failed and when the condition presents persistent symptoms serious enough to warrant such interference. We address ourselves to the muscle at fault—to the superior rectus or inferior oblique if the elevators are affected and to the inferior rectus if the depressors are affected. In comitant hyperphoria tenotomy of the inferior rectus should be avoided, advancement of the inferior or tenotomy of the superior rectus being performed instead.

DR. G. C. SAVAGE, Nashville: Any test of the ocular muscles to determine the existence of hyperphoria or other phorias, that is binocular in character, is unreliable, so far as the recti muscles are concerned. The binocular test is certain to excite one or more of the volitional centers into action, and each of these acts on a pair of ocular muscles, one belonging to each eye. The motor centers, both volitional and fusional, should be absolutely quiet throughout the test for hyperphoria. So far as the recti muscles are concerned, one can not do that with the Stevens' phorometer, or any other binocular instrument. It can be done with any instrument of the monocular variety. The only one, so far as I know, is mine. I want to say, however, that the monocular test in the distance, and not in the near, is the test for hyperphoria. There is only one excuse for testing in the near, and that is to determine the normality or abnormality of accommodation and convergence. There is only one excuse for testing to the right or left, or up or down or obliquely with the phorometer. I wish I had time to make myself absolutely clear, but I want to impress on you the importance of rest of all the volitional and fusional centers—absolute rest of the centers of every muscle that moves the eyeball. We can do that by having the monocular phorometer before one eye only, being sure that the image in that eye is displaced far beyond the possibility of fusion. Throw it out of the fusion area. Therefore, the displacing prism should be sufficiently strong to throw the displaced image absolutely beyond that area, and all the centers will have been put at rest—the centers of fusion as well as the centers of volition. The volitional centers are set at rest by looking straight ahead with the other eye; the fusion centers are set at rest by throwing the image, in the eye under test, so far out of the area of fusion that they do not enter into the calculation. By doing this, all the muscles of the eye are going to get into a state of tonicity only, for it takes an impulse of some kind to make a muscle contract. If there is no neuricity coming from the fusion centers, no muscle will be affected. Now, if there is heterophoria, it is going to show itself, and one can measure it. The measuring device of the instrument and the displacing device should be before only the one eye, while the other eye should be free. It is just as easy to tell whether it is paretic or tonicity hyperphoria, as it is to drink a glass of cool water when thirsty. Take a candle and tell the patient to fix his head, and without anything in front of either of the eyes, to follow the candle up and then down. If there is no doubling either above or below anywhere, there is no paresis, and the hyperphoria is one of tonicity.

DR. W. H. ROBERTS, Pasadena: I am very glad Dr. Stevenson has brought this subject to our attention, because it is just as necessary to examine the external muscular balance in every case of refraction as it is to examine the fundi. I can speak from bitter experience, because I suffered from uncorrected hyperphoria for years and know what it means.

The necessity of carefully measuring the amount of hyperphoria for near, is well shown in the following case, a brief report of which follows:

July 8, 1904.—Mrs. W. C. B., aged 45, had been suffering from nervous prostration for some months. She had been unable to use her eyes for near for years, and more recently had to stop riding in her automobile, shopping, theater going,

and the like, as such expeditions always produced a violent headache. At the first examination I found:

O.D.V. 6/7.5 ?? 1½ esophoria.
O.S.V. 6/7.5 ??? 1° B.U.R. or B.D.L.

Ophthalmoscopic examination, normal.

After repeated examinations, I ordered:

℞ O.D. + sph. 1.25 ⌒ + cyl.0.25 ax 90 ⌒ 1° B.U.R.= 6/5++
O.S. + sph. 1.00 ⌒ + cyl.0.50 ax 75 . =6/5++
With + sph. 1.75 added to each for near.

She returned Oct. 8, 1904, saying that her eyes had felt much more comfortable until recently. I found that her hyperphoria had increased to 2½°. In three months more, this had increased a degree and a half for both distance and near, and with this corrected, she was more comfortable than she had been for years.

Two years later she returned complaining of the same troubles which brought her to me originally, and I found the following:

O.D. + sph.1.50 ⌒ + cyl. 0.50 ax 90 = 6/5)5° B.U.R. or B.D.L.
O.S. + sph.1.25 ⌒ + cyl. 0.50 ax 75 = 6/5)2° exophoria.
with + sph. 2.00 added for near.

She was given prism exercises which developed her interni and all exophoria disappeared. For the next year she was comfortable, as long as she did not attempt to use her eyes for near. In February, 1908, her hyperphoria for distance was 5½° and I then made the discovery that her hyperphoria for near was but 4°. Thinking that this discrepancy of 1½° might be the cause of her discomfort when using her eyes, I had made for her reading glasses with 4° of her hyperphoria corrected and she at once became perfectly comfortable and has remained so ever since. She uses her eyes now all she wishes and never has a headache. She has entirely recovered her general health too. I had difficulty in solving the bifocal problem, as I did not wish to use the perfection bifocal. I finally got my optician to grind a flake segment consisting of a + sph. 2.00 ⌒ 1½° prism, base down, which was cemented on her right distance lens which contained a 3° prism, base up. These bifocals she has worn for over a year with entire satisfaction.

DR. W. C. POSEY, Philadelphia: I am in hearty accord with Dr. Stevenson as to the desirability of carefully detecting and frequently correcting hyperphoria, as I am convinced that the correction of the ametropia alone in many cases in which hyperphoria is present, though even in but slight degree, will not relieve the symptoms or remove the source of the difficulty. Careful observation and a statistical study of a large number of patients who had worn vertical prisms for many years has shown me that the incorporation of the prism into the correcting lens has not made higher degrees of hyperphoria manifest themselves than in cases of similar degree in which prisms had not been ordered, while the marked relief which the prisms afforded in many instances have made them indispensable to me. It has always been my practice to determine the amount of hyperphoria at the reading point as well as at 6 meters, and I have frequently noted a discrepancy between the two distances and this is especially true of course in paralytic cases. Like many others perhaps, I have not infrequently given prisms of higher degree for reading than distance, when the hyperphoria was excessive, but the degree of the prisms ordered is generally based on the objective finding rather than on the subjective sensation of the patient.

Like Dr. Stevenson, I have found hyperphoria in anisometropia in all cases in which the difference in refraction between the eyes is at all marked, even when associated with a moderate degree of esophoria or exophoria. Where there is orthophoria in the horizontal plane, or but little difference in refraction between the eyes, hyperphoria is rarely present.

Based on a clinical study of 287 cases of hyperphoria which I made ten years ago, the results of which were communicated before the Section on Ophthalmology of the College of Physicians of Philadelphia (Nov. 15, 1898) I found that of the symptoms evoked by hyperphoria, headache was the most frequent, that of the supraorbital variety predominating. In a small proportion of the cases it was unilateral, usually on the same side as the eye with poorest vision. Typical attacks of migraine occurred in about 5 per cent. of the cases. A symptom of frequent occurrence and of great value in directing attention to the existence of hyperphoria was found to consist in an associated reflex in the supply of the facial nerve. This may manifest itself either in a unilateral twitching of the lids, as in nictitation, or more rarely, by a pronounced blepharospasm.

DR. WILLIAM ZENTMAYER, Philadelphia: I am sorry that I can not agree with Dr. Posey as to the effect of vertical prisms of hyperphorias. I am certain that they frequently render manifest, latent hyperphoria, and in Ball's book I expressed the opinion that they might be used for this purpose in the higher degrees in order to render manifest the total error before operating. In the last ten years, I have prescribed vertical prisms in low degrees, under 2°, only very exceptionally. I believe that the cause for frequent ordering of them lies in the improper use of cycloplegics. If thorough cycloplegia is obtained and the error thus found almost fully corrected the occasion for the use of vertical prisms will be only rare.

DR. E. E. HOLT, Portland, Me.: Ever since the phorometer came out I have used it continuously. I practiced using prisms or decentering lenses to a certain extent for years. Now, however, I find myself not using them and very little like the last speaker I correct all the ametropia and get along with that practice. Dr. Savage said that it is useless to use the binocular test for hyperphoria. I have an idea that I have discovered some constitutional diseases, particularly diabetes, by the use of that test for hyperphoria, and if I did not get anything more than that out of it I should consider it worth using.

DR. MARK D. STEVENSON, Akron, Ohio: I was glad to learn from Dr. Roberts yesterday that a flake cement segment could be put on in these cases. My optician refused to make a cement segment and said that the only way to make a difference in the prismatic effect of bifocals was by making perfection bifocals. There is not a man on earth who satisfies all his patients, no matter how carefully his refraction work is done. I feel certain that those men who do not use prisms,, especially for hyperphoria, will be surprised at the results derived from them in proper cases. Some dissatisfied patients, if hyperphoria is present, will obtain complete relief and be pleased if a prism is added to the correction they already have and some displeased anisometropes will be satisfied by attention to a few of the details pointed out in this paper. I have many patients who were temporarily relieved by lenses without prisms in whom hyperphoria developed and who could later be relieved only by the introduction of a prism. In some of these cases, as a matter of experiment, I have tried the same lens but without prisms and the patients were dissatisfied. The introduction of prisms again gave satisfaction. It is well to keep in mind the different causes of hyperphoria. Hyperphoria is real or latent, of which latter at first only a part may be discovered and more may uncover itself later. A certain number of cases are spasmodic. I have found variations in the degree within a few days, and a few months later with improvement of the general health the hyperphoria sometimes disappears, depending on its cause. I have frequently found that hyperphoria varies for the distance and for near, and that it sometimes varies at different angles.

Lack of Influence of Physical and Moral Trauma on Pregnancy.—The prevalent idea that emotional and physical shocks are liable to affect a pregnancy is shaken somewhat when we learn that at the time of the earthquake at Messina, pregnancy continued to normal term in twenty-five women several months pregnant. Notwithstanding the horrors of that time, the pregnancy continued unmolested to term, with delivery of normal children in all but one case, in which the woman had been felled by a beam across the abdomen and held captive for three days. Another woman was delivered prematurely, but not until six weeks after the catastrophe, and an existing endometritis was probably responsible for this. Rebaudi in making a report on these cases, quoted in the *Semaine Médicale*, May 26, states that the contrast between the shock, privations, lack of food, traumas and frequent fractures and the obstetric results is all the more striking as some of the women were of an extremely nervous temperament and some had aborted in previous pregnancies.

LOCALIZED FACIAL SWEATING, FOLLOWING CERTAIN OLFACTORY STIMULI *

GROVER W. WENDE, M.D.

AND

FREDERICK C. BUSCH, M.D.

BUFFALO, N. Y.

The three following cases are instances of a peculiar sweat reflex which does not seem to have been recorded in the literature. The fact that the last two were brought to notice shortly after the first was seen, however, would argue that the condition is not as uncommon as would appear from the lack of records.

In all three cases the sweating is confined to certain definite facial areas and follows, rather quickly, the ingestion, or even the smelling, of certain pungent articles of diet. The reflex involved apparently includes, on the afferent side, the olfactory nerves (possibly, also, to a lesser extent, the gustatory) and, on the efferent side, the secretory fibers of the sweat glands of the face, which are distributed with the seventh cranial nerve.

Why the sweating should be so sharply localized and invariably confined to the same areas, and why certain stimuli and those only, in any given case, should cause this reflex, has not been determined. Heredity is undoubtedly a factor, since, in one case, the condition has appeared in one or more members of the family during four generations, at least, and in the other two cases it has been traced through two generations. In all instances, the individuals thus affected are of a distinct nervous type and have a sensitive skin and mucous membranes. There seems to be, however, no neurotic element present.

Experiments with a variety of other pungent substances, in an endeavor to obtain the reflex, have been negative.

The following is a brief outline of the case histories:

CASE 1.—Perspiration of the face, following ingestion of tomatoes, strong cheese, roast beef and pickles.

Patient.—M. L. W., aged 54, married; the second of three children. His mother died of old age at 78; his father died at 56, of yellow fever; one sister died of heart disease at 57. The patient and one sister suffered for years from pronounced hypersensitiveness, involving numerous functional derangements and marked caprices relating to strong odors. The patient has written his own personal history, as well as his idea of the condition of the other members of the family.

History.—"For most of my life, certainly during all the adult period, I have been peculiarly affected by tomatoes, especially by those stewed. Always after eating them a perspiration would break out on my face, especially on the nasal surface, and to a less extent on the upper lip and temples. This generally occurs in one or two minutes, or less. Persons seated with me at the table have often commented on the fact, sometimes noticing it before I was aware of it myself. On the removal of the lid of a covered dish of stewed tomatoes, set directly before me, the inhalation of the fumes sometimes produces the same result, though in less degree. The same is true of strong cheese (as Roquefort) or pickles. My sister writes me: 'We certainly have inherited from our mother a peculiarly sensitive and irritable skin. I do not remember her ever having any actual skin disease, except aggravated eczema, once or twice, on her hands. I can not remember that anything she ate ever brought out perspiration. You must recall how much trouble she had with her nose.' Mother occasionally had a hair tonic applied and always declared that, in a few minutes, she distinctly tasted the quinin, which was one of the ingredients. She was very sensitive to all kinds of drugs, and, on calling in a new doctor, had to urge him to give her less than ordinary doses. My sister continues: 'As for myself, I have had eczema three or four times on my hands, and have suffered terribly each time; as to the perspiration after eating, you are quite right about the cheese.' This in answer to my inquiry as to my recollection of having seen her eat sago cheese and noting the perspiration on her nose, which, when wiped off, showed green on the handkerchief. 'Green cheese always affects me in that way, but not often any other kind. I do not know that our sister ever had any trouble in that way; but she had eczema of the legs. My children have never been troubled by perspiration arising from certain foods.'"

Examination.—The patient was tall, well made and fairly muscular; hair light; complexion fair; complained that his skin was always very sensitive to the bites of insects, even to the attack of a single mosquito. When first seen, he was suffering from an eczema of both legs, which made its appearance without apparent cause. The urine was normal. The patient was otherwise in good health. Closely questioned on all points relating to the hypersecretion of sweat due to food, it was his opinion that it followed the use of Roquefort cheese, tomatoes, especially stewed, and, in a less degree, pickles. Lately he had noticed that hot roast beef, especially the odor, induced the same phenomenon.

Demonstration.—March 28, at our request, the patient demonstrated this peculiar influence of the food on the sweat glands. He first partook of cheese and in less than two minutes sweat was noted on his nose and forehead; in less than another minute his entire face was bathed in perspiration. There was neither redness nor flushing, but the skin presented a shiny appearance, due to a sebaceous flow. The cheese was then discontinued and removed from the table. After a delay of ten minutes, his face was wiped a number of times, until free from moisture. He then partook of stewed tomatoes, and in less than one minute the facial sweating became profuse and was much more marked than that following the ingestion of cheese, thus confirming his previous observations. Apparently there was no hypersecretion on other parts of the body, he having carefully examined the region of the axillæ. A series of experiments with garlic, asafetida, valerianate of ammonia and acetic acid gave negative results.

CASE 2.—Perspiration of the infraorbital region, following ingestion of onions. The subject was a well-nourished man, aged 40 years, of nervous temperament and sensitive mucous membranes, but otherwise normal.

Family History.—The patient's paternal grandmother, who died at the age of 100, was the first member of the family in whom this peculiarity was noted. His father, who died at the age of 78, suffered from this condition to a marked degree, the sweat literally streaming from the region below the eyes whenever he ate or smelled onions. Two living sisters were affected in like manner, the older, aged 33, being more distinctly influenced than the younger, who was 30. In all of these instances the infraorbital regions alone were affected and onions were the only stimulating agents which would produce the effect.

Demonstration.—On April 18, under the observation of one of us, the patient ate three small green onions. Within thirty seconds he spoke of a sensation of cold under both eyes, followed, in a few seconds, by noticeable beads of sweat, the sweating becoming more pronounced and reaching its maximum in about five minutes, at which time it was so profuse that it was necessary to wipe it away. An attempt was made to stimulate the olfactory region electrically, but without success, because of the sensitiveness of the nasal mucous membrane, which would not tolerate the introduction of electrodes.

CASE 3.—*Family History.*—The earliest record of the condition in this family relates to the grandfather, who died at the age of 80. The father in the case under discussion, who is alive and well at the age of 70, has, as long as he can remember, under the influence of certain foods, perspired about the eyes and upper lip. A brother and a sister, both older than the patient, were never subject to the affection. One brother, aged 43, has been thus affected since childhood, while a younger brother has been exempt.

Patient.—The subject of this record was a man of 42, a blonde, of nervous temperament. He had been aware of this

* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

condition for fifteen years. His son, now 13, began to show similar symptoms a year ago. The sweat reflex, in himself and in the other instances in this family, cited above, is established through the use of pungent or peppery foods, as well as acids and condiments. The sweating occurs about the eyes, forehead and upper lip. One of us observed the patient, during the ingestion of lobster salad. At the end of one minute profuse perspiration occurred about the eyes, forehead and upper lip, lasting about five minutes and accompanied by a slight erythema. In this case, as in the second one recorded, the sweating was preceded by a sensation of coolness in the skin areas affected.

CONCLUSIONS

1. Heredity is a decided factor in all these cases; in one, the condition was traced through four generations.
2. The condition is not congenital, since it has not appeared in any of the cases before puberty.
3. Localization of the sweating is identical in all members of the same family.
4. The same stimuli produce the condition in all members of the family.

Clinical Notes

A DIVIDED SHEET FOR GYNECOLOGIC EXAMINATION *

CURRAN POPE, M.D.
Professor of Physio-Therapy, University of Louisville, Medical Department; Consulting Neurologist, Louisville City Hospital; Superintendent, The Pope Sanatorium
LOUISVILLE, KY.

I present a new modification of the ordinary sheet used in gynecologic examination and treatment. This sheet has proved so satisfactory in my hands that I have discarded the older sheet and now use the new device altogether. It is simple and can be easily made in a few moments by any woman with needle and thread or machine.

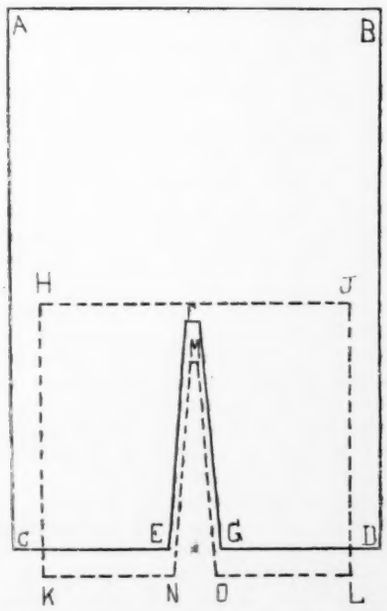

Diagram to show method of making a sheet for gynecologic examination.

To make the sheet take any ordinary sheet of sufficient size (7 by 5½ feet) such as is used in ordinary gynecologic examinations and spread it on the floor; at one of the long ends (CD) mark a dot to show the center. From this central point on the edge measure toward the center of the sheet 3 feet (F); from the dot in the center of the end, measure 2 inches on each side; then cut out the triangle (EFG). The edges of this triangle should be hemmed or bound with tape. Take a piece of cotton 5¼ feet square (HJKL) and spread it on the floor. Mark the center of one edge and a point 2¼ feet distant from the first point, on a line perpendicular to the edge. Take the scissors and cut the sheet at this point, hemming or binding the edges. This second sheet (HJKL) is sewed to the large sheet (ABCD) 8 inches above the bifurcation on the large sheet at F. It is an excellent plan to bind securely with silk or thread the edges of the bifurcations at F and M. It will thus be seen that this is a double bifurcated sheet in which a smaller sheet is superimposed on a larger one.

In use the nurse places the patient in the ordinary dorsal gynecologic position, wrapping the left leg with the flap (FGD) of the large sheet and the right limb with the flap (FEC), thus perfectly protecting the lower limbs. The two flaps (KNM and LOM) of the smaller sheet, hanging down in front, are tucked neatly under the buttocks.

It will be readily seen by those who have had any gynecologic experience that examinations, both digital and instrumental, can be made with the slightest possible exposure—very much less than with the ordinary sheet. I have found it especially nice when using specula, as it enables the physician to introduce them, tuck the sheet snugly around and thus secure absolute protection. From the time when I first began to use the sheet, a number of months ago, patients at once commented on the facts herein noted.

115 West Chestnut Street.

* Exhibited before the Louisville Society of Medicine

MOTOR APHASIA AS A SEQUELÁ TO SCARLET FEVER

REPORT OF A CASE

NICHOLAS LAWREY, M.D.
BROOKLYN

A child, aged 6, well nourished, had a chronic discharge from the ears, and an attack of measles three months previous to present illness. The scarlet fever started with nausea, headache, vomiting and high fever (105 F.). Cerebral symptoms, as restlessness, delirium and mental apathy, were predominant. The patient could be aroused for medicine and nourishment, but soon sank again into a mental stupor. On the fifth day of the disease his ears began to discharge, the temperature remaining high with remissions, till the seventh day, when improvement began and amelioration of all the symptoms. By the middle of the second week paraplegia of the left side was noticed with motor aphasia. The patient seemed to understand words, and retained full power of hearing, but the power of articulate speech and of producing complicated movements in the region of speech muscles was wanting. The tongue could not be protruded well and deviated to the left. The paralysis lasted a few weeks, and the patient is gradually regaining his power of speech three months after illness.

283 South Second Street.

Autografting.—Marion S. Souchon, M.D., House Surgeon Hôtel Dieu, New Orleans, La.: The following method, though not evolving a new principle, is original in the application of the Reverdin and Thiersch methods of grafting. At the skin edges of a granulating surface are found the proliferating new cells which are particularly active. This new tender membrane is easily removable and may be used as a neograft. One may either make pin grafts, or detach a strip at one end only, and spread it in the shape of a peninsula. The method is so simple and the results so unfailing as to make further description unnecessary.

Therapeutics

HAY FEVER

It is now time for the annual discussion of the treatment of this disease. The highest aim is prevention, and before the periodic attack occurs, long before if possible, the patient's nose should be thoroughly examined for localized irritations and hyperesthetic areas, and these should be cauterized or removed as deemed best by the nasal specialist.

If, in spite of the building up of the general health and the local preventive measures, the attack of hay fever recurs, then before the date of the beginning of the disease the patient should, if possible, go to a region where he has found that he is more or less immune. As the disease seems to be caused by the pollen or irritants in the atmosphere, produced or blown from various flowers and weeds, the ideal spot for these patients is one where there is little vegetation. Some patients do well in the mountains, some at the seashore, some on island resorts, some on sea trips. There generally can be found a region in which a patient is fairly immune, and to that he must resort annually.

If the attack develops, sedative measures, cleansing measures and general systemic treatment must all be inaugurated. Simple cleansing alkaline sprays give some relief. Many patients are made better with weak solutions of suprarenal, perhaps 1 part to 10,000 of the active principle of suprarenal in physiologic salt solution, or in an alkaline solution such as the liquor antisepticus alkalinus, diluted with an equal part of water, or in Seiler's tablet solution, each tablet being dissolved in 30 c.c. (2 fluidounces) of water. Such a suprarenal solution may be used repeatedly. It causes no habit and will generally give temporary relief. In a few instances the reaction from its use causes more or less congestion, and in such cases of idiosyncrasy it should not be used. Sometimes an ointment of adrenalin chlorid in a pure white vaselin or petroleum (1 to a 1,000) is efficient in causing temporary relief. A drop or two of this is put into the nostril and the contraction of the mucous membrane from the absorption of the adrenalin is sometimes as great as when adrenalin spray is used and often more lasting. Adrenalin chlorid tablets, containing 0.002 gram, allowed to dissolve on the tongue, relieve the congestion, especially in asthmatic cases, and will also relieve the asthma in these cases. Thin oil sprays containing adrenalin chlorid are also at times of value.

There is no justification for the use of cocain as a spray or application if it is to be used frequently in hay fever or in any other nasal condition. The danger of forming the habit is too great.

Antipyrin, quinin and various other local sprays have been recommended and used, but rarely are they of any aid in hay fever.

The local application of various pollen preparations and pollen serums have not been of sufficient advantage to warrant their recommendation as specifics, although occasionally a patient may be benefited by such treatment.

Internally, the following drugs, although failing as many times as they benefit, should be tried in each case that is otherwise incurable, viz.: quinin, atropin, strychnin, antipyrin, iodids and thyroid.

Quinin is sometimes of benefit in large doses, rarely in small doses. Its action when helpful is similar to that in certain cases of urticaria, perhaps as an antitoxin

Atropin to be of value must ordinarily be given to the point of slight physiologic effect, such as dryness of the throat, increased rapidity of the heart, and flushing of the face. In susceptible individuals the pupils may also be dilated. The atropin treatment is certainly unpleasant, and minute doses are generally of little value. Occasionally a patient is benefited by 1/300 or 1/400 of a grain three or four times a day. Such treatment should be tried until it is found valueless.

Sometimes strychnin given in ordinary doses is of benefit. This is especially true in patients who are much weakened, and have a good deal of passive congestion or sluggish circulation in the mucous membranes.

Antipyrin can only be of value when given in sufficient dose to act as an antispasmodic, much as it acts in whooping cough. It may possibly act as an antitoxin to the irritant from the pollen, and may be of benefit when there are asthmatic symptoms. The dose for an adult, to be of value, must be 0.50 gram (7½ grains) three or four times in twenty-four hours. It is well to combine with this treatment the coincident administration of digitalis. If the condition is tedious and prolonged it would rarely be wise to give the antipyrin through the whole period of the disease. If patients suffering from this disease have weak acting hearts, digitalis may benefit them, unless they have some arteriosclerosis, in which case it is ordinarily better not to use it.

In some patients iodids in small doses act for good in causing increased secretion and preventing some of the intense swelling of the mucous membranes. In other patients the condition is made rapidly worse. Sometimes a very small dose of an iodid, as 0.05 gram (or 1 grain) three times a day, after meals, or a small dose of thyroid as 0.05 gram (or 1 grain) of the official thyroid powder three times a day will increase the secretion, dilate other blood vessels and relieve the local congestion. This is especially true in asthma and hay fever after fifty, and where there is gout.

As in asthma, the diet should be very simple. Any extra gastrointestinal irritation will certainly intensify the hay fever symptoms. For the same reason the bowels should be thoroughly moved daily, perhaps best by a gentle saline, as phosphate of soda.

Sometimes the hay fever manifestations are improved by treatment similar to that of uricacidemia, i. e., by a vegetable diet, one as free as possible from purin bases, and the administration of alkalies. The alkali may be potassium citrate or a similar drug. The benzoate of soda may be of value, and often small doses of effervescing Rochelle salt, as 1.00 gram (15 grains) three or four times a day, are of benefit.

A Herniotomy in Africa.—Two young physicians, Mr. and Mrs. William Cammack, who are at work in Chisamba, West Africa, performed their first hernia operation on a schoolroom table. The sheets, towels, and sponges were sterilized by boiling in a galvanized tub, which was the only thing available as a sterilizer; and they had to be used wet, as they could not be dried without danger of soiling them again. The native helper, who speaks a little English, stood by during the performance and helped carry the patient, still unconscious, to his room and bed. In describing the scene afterwards to a group of astonished listeners he said, "I saw—I saw—I saw him die. When we carried him home he was still dead and I never thought he would live again." Dr. Cammack said that people came from far and near to look at the man, who was as much a walking miracle to them as the man the Saviour restored to his mother from a funeral bier was to the people of his day and age.

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[*For other information see second page following reading matter*]

SATURDAY, JULY 17, 1909

THE TREATMENT OF THYROIDISM BY A SPECIFIC CYTOTOXIC SERUM

The fundamental premise of Rogers and Beebe[1] in the treatment of thyroidism by an active antiserum is that the symptoms of the disease have their origin in a condition of hyperactivity of the thyroid. The serum is designed to neutralize, by its antitoxic property, the effects of the thyroid proteid in the circulation, and to inhibit by its cytotoxic property the secretory activity of the gland. It is prepared by the inoculation of animals with pure proteids from human thyroid glands. These authors find that if the pulp of an organ be injected into an alien species, antibodies to all the proteids so introduced are formed. Certain of these antibodies are specific for the organ used in producing them, while others are common to all the proteids of the species from which the organ is taken. By using nucleoproteid of organs that are as nearly blood-free as possible, instead of the whole organ pulp, relatively more of the specific factor and less of the common element is obtained in the serum. Rogers and Beebe believe that the serum produced by nucleoproteid of the thyroid is more cytotoxic, and that produced by thyroid globulin is more antitoxic in its action.

It is of first importance in the intelligent treatment of any case of thyroidism to recognize the type to which it belongs. There is often a progression from a typical thyroidism, through a mixed, indefinite type, to a characteristic condition of myxedema. This clinical progression is accompanied by changes in the pathologic structure of the thyroid which shows a transition from a condition of hyperemia with increased colloid, seen in the early stages, to a state of hyperplasia and diminishing colloid, followed by degenerative changes which result in atrophy of the cells, fibrosis and sclerosis of the vessels with hemorrhages and cysts.

Rogers and Beebe divide their cases clinically into two general classes: (1) those favorable for serum treatment; (2) those that may require combined treatment. The cases favorable for serum treatment are those in which the gland is probably hyperemic or hyperplastic. This first class includes the early, typical cases of exophthalmic goiter in its incipient, mild or severe form, and typical exophthalmic goiter which may have existed for some time in a subacute form with occasional exacerbations, but without marked secondary changes. Their most striking results are obtained in cases of this class, probably because the disease is uncomplicated. They find that serum treatment in such cases promptly arrests the course of the disease. In the severe, rapidly developing type of exophthalmic goiter, which has many of the characteristics of an acute infection, a very marked improvement results from small amounts of serum, an effect comparable to that seen in diphtheria following antitoxin. This type has the most marked toxemia, and furnishes the most convincing clinical evidence of the antitoxic action of the serum.

The severity of the disease and of the reaction, both local and general, to the serum determines the size of the dose and the frequency of administration; the serum is not forced in the face of marked reaction. The majority of patients belonging to the first class progress very favorably, and many recover entirely, with doses of about 0.5 c.c. of active antiserum given, at first, as often as the reaction permits, and later at intervals of from 5 to 7 days. Exophthalmos and goiter are the last signs to disappear, and so long as the latter persists there is some danger of a recrudescence of symptoms under mental or physical strain.

In dealing with the second class of cases, which require combined treatment, pure proteid of sheep's thyroid is given hypodermatically during the course of serotherapy. In such cases hypothyroidism and hyperthyroidism may coexist, and the treatment consists in giving sheep-thyroid proteid to answer physiologic needs, while the abnormal products of the patient's own gland are neutralized by the serum. It seems certain that the serum does not neutralize the physiologic action of the sheep-thyroid proteid given at the same time, and that clinically some patients improve with the combined treatment. No precise rules for the administration of serum and the sheep-thyroid proteid have been formulated. Each case, they state, must be studied in order to determine whether the condition of hypothyroidism or hyperthyroidism predominates, and the authors give a table of the signs and symptoms characteristic of the two conditions which aid in the determination.

Of 246 cases reported by Rogers and Beebe, 227 were of the class favorable for serum treatment. The results show about 30 per cent. of patients cured of subjective symptoms, with objectively nothing more than a gland discoverable on deep palpation. About 50 per cent. of the patients improved; a small goiter usually persisted, but most of the subjective symptoms were relieved. About 20 per cent. of those treated failed to show beneficial effect, and of these about 10 per cent. have died.

1. Arch. Int. Med., Nov. 15, 1908.

THE SEWAGE PROBLEM OF CHICAGO AND VICINITY

Throughout the country attention has been directed in the past in a noticeable degree to the Chicago problem of sewage disposal. During the period when a large part of the city sewage was poured directly into Lake Michigan not far from the drinking-water intakes the

excessive prevalence of typhoid fever in Chicago was frequently noted and widely deplored. Later the undertaking of a huge drainage canal to divert the sewage away from the lakes and into the Mississippi valley, and its construction on a scale of almost unprecedented magnitude and at enormous expense aroused much interest both among engineers and the general public. The famous suit between the City of St. Louis and the Sanitary District of Chicago relative to the possible pollution of the St. Louis water supply was another factor that attracted general notice to the local situation.

From recent developments it is apparent that some difficult questions still remain to be solved. It may not be generally known that by no means all the sewage of Chicago now passes into the drainage canal. That part of the city lying south of Eighty-seventh street and known as the Calumet District was thinly settled when the drainage canal was projected and was not at first included in the Sanitary District of Chicago, but, owing to its increase in population, it was incorporated in the district in 1903. At present the sewage of this region, estimated as having at least 120,000 population, passes in large part into the Calumet river and thence into Lake Michigan. One of the Chicago water intakes, situated at Sixty-eighth street, is exposed to pollution from this source, and the conditions prevailing in that part of the lake have been compared to those existing near the mouth of the Chicago river before the opening of the main drainage canal.

Further complications have arisen through the rapid growth of other towns all along the southern end of Lake Michigan in the state of Indiana. The sewage of these towns is discharged for the most part either into the Calumet River or directly into Lake Michigan. Since most of these communities obtain their drinking-water from the lake, it is not surprising that typhoid fever is said to be prevalent.

It is evident that the situation is one that does not admit of indefinite delay; neither, on the other hand, does it justify a snap judgment. The plan that has been longest before the public and for various reasons most fully discussed has been the construction of a tributary canal about six miles in length connecting the Calumet River with the main drainage channel, the cost of the whole project being estimated at about $15,000,000. The construction of such a canal, however, has been forbidden by the United States Government on the ground that the diversion of water from the Great Lakes would be so great as to lower permanently the lake level and interfere with navigation. This is in accordance with the report of the International Waterways Commission which recommended that the government should prohibit the diversion of more than the 10,000 cubic feet per second at present used for Chicago drainage. It is estimated that the proposed Calumet canal would increase this amount by 4,000 cubic feet per second. As is well known, the Sanitary District of Chicago has refused to recognize the authority of the government to prohibit this increase, and the case is now pending in the United States courts, where a decision on the point is looked for this summer.

Meanwhile other objections have arisen to the completion of the dilution project. The most serious relates to the capacity of the main drainage channel to care for the increased flow. If the flow of the proposed Calumet canal is added to that of the present drainage basin the main channel will be greatly overtaxed in times of flood. Indeed, it has been recently stated by the President of the Board of Trustees of the Sanitary District of Chicago that "under present conditions the maximum flood, irrespective of what the Calumet canal brings in, will take the total capacity of the main drainage channel." An error in the calculations of the engineers leading to too low an estimate of the flood waters of the Des Plaines River seems to be in large part responsible for this situation.

For the time being, at all events, a setback has been given to the project of a Calumet canal emptying into the main channel. As a direct consequence renewed interest has been aroused in methods of sewage disposal that do not involve direct dilution of the crude sewage. A report on this subject was made about two years ago by Rudolph Hering, the distinguished hydraulic engineer, and contains some suggestions and computations of value. The urgency of the problem, its intricacy and the magnitude of the interests involved have induced the Sanitary District to undertake its study on a broader scale than heretofore. We are informed that an experiment station will shortly be established for the purpose of investigating certain modern methods of sewage disposal, for determining the character of the sewage to be treated and ultimately, it is hoped, for devising ways and means of dealing with the specific Calumet problem. There can be no doubt as to the wisdom of such a step, and much information, of value not only to local officials but to sanitarians everywhere, may be confidently expected.

SECRECY VERSUS LACK OF KNOWLEDGE IN MEDICINE

The *Midland Druggist and Pharmaceutical Review* seems disposed to give members of the medical profession some kind and disinterested advice, and it is pained to see that we adhere to the benighted notion that secrecy in medicine is to be condemned. To quote:

"As to secrecy of composition, does the physician know the inner nature of the antitoxins and serums which he prescribes, or has he fathomed the chemical mysteries of digitalis, ergot, and dozens of other articles of materia medica which are yet largely sealed books to the chemist? He uses these articles solely because experience has taught their value in the treatment of certain pathologic conditions, and he would in the highest degree be negligent and false to the trust reposed in him by his patient should he refuse to prescribe a known valu-

able remedy simply because its composition happens to be unknown to him. The patient calls his physician not merely to prescribe the treatment that has received the approval of some official body, but because he believes he will prescribe the remedies which experience has demonstrated to be useful in the affection from which the patient suffers."

True, the physician, or the physiologic chemist, has not "fathomed the chemical mysteries of digitalis, ergot," and several other drugs. Neither has he learned all there is to know about quinin or mercury. He does know, however, that quinin will produce certain well-defined effects in malaria and that mercury may be relied on in syphilis. On the other hand, he does not know what result will be obtained by using "Blank's Malaria Cure" or "Slow's Sure Specific." Moreover, even if he finds out what either of these nostrums does to-day, he has no assurance that it will do the same to-morrow. The argument of the *Midland Druggist* amounts to this: You don't know *everything* about any one drug; therefore, it is unnecessary for you to know *anything* about any empirical combination of drugs, said combination being likely to vary, both in individual content and in content proportions. Truly a logical proposition. There is an essential difference between secrecy that is unavoidable and that which is contrived for purposes of gain or deceit. The fact that we are not able to fathom the mysteries of many remedies with which Nature has supplied us is no reason why we should use those made by man in which the element of mystery is purely artificial and exists only for the purpose of commercial gain. When the physician consents to prescribe remedies whose composition is known only to the manufacturer, he is abdicating his office as physician and assuming the function of the prescribing druggist who recommends "patent medicines," about which he knows little, for diseases of which he knows less. In such cases the use of secret remedies is a fault which disgraces the members of a profession. The unknown composition of natural remedies is a hindrance to the advance of pharmacy and medicine, but the use of secret remedies on the part of the physician is a dereliction of duty. The first will be removed by the advance of science; the second can be removed only by raising the ideals of the two professions, and we are sorry to see a representative of pharmacy not only disregarding the highest ideals of his own profession, but endeavoring to lower those of the medical profession as well. There are, however, we are glad to say, pharmaceutical journals which, recognizing the viciousness of secrecy in medicine, would never lend their pages to furthering the cause of nostrum prescribing as is done in this case.

THE DATE OF THE NEXT SESSION

The sixty-first annual session of the American Medical Association will be held in St. Louis, Missouri, June 7 to 10, 1910. The date has just been fixed by a conference between the Trustees of the Association and the local Committee of Arrangements in St. Louis. The preparations for the meeting are well under way, as the St. Louis profession intends that nothing shall interfere with the success of the meeting because of any delay in contracting for halls or in obtaining a prior right to the hospitality of the city during the week selected. The medical profession of St. Louis and vicinity are possessed with the ambition to make the attendance at the St. Louis Session surpass that at the Chicago Session, which now holds the record. The central location is expected to aid in securing a large assembly. Not only this, but they expect to have the session unusually brilliant in every other respect.

Medical News

CALIFORNIA

Commencement Exercises.—The College of Physicians and Surgeons, Los Angeles, held its fifth annual commencement exercises, June 24, when diplomas were awarded to a class of four by Dr. Charles W. Bryson, dean of the faculty. The doctorate address was delivered by Hon. Curtis D. Wilbur.——Oakland College of Medicine and Surgery held its annual graduation exercises May 27. The opening address was delivered by Dr. Haywood G. Thomas, president of the college, and the doctorate address was delivered by Hon. Henry A. Melvin. A class of four was graduated.

State Board of Health Election.—At the meeting for reorganization of the State Board of Health, held in Sacramento, June 26, Dr. Martin Regensburger, San Francisco, was reelected president for the third term; Dr. William F. Snow, Stanford University, was elected secretary to fill the vacancy caused by the resignation of Dr. Newell K. Foster, and Dr. W. LeMoyne Wills, Los Angeles, was chosen vice-president, vice Dr. Wallace A. Briggs, Sacramento.——Dr. James H. Parkinson, Sacramento, has been appointed a member of the State Board of Health, vice Dr. Aden C. Hart, Sacramento.

Personal.—Drs. Fitch C. E. Mattison, Pasadena, John H. Martindale and Wesley W. Beckett, Los Angeles, and Francis M. Pottenger, Monrovia, have gone to Europe.——Dr. and Mrs. Walter Lindley, Los Angeles, have returned from Europe.——Dr. Ray L. Wilbur, Palo Alto, leaves in a short time for Europe.——Vacancy in the position of university physician and head of the board of directors of Peninsula Hospital, Palo Alto, will be filled by the appointment of Dr. Thomas M. Williams.——Dr. George Watt, Willows, has been appointed physician of Glenn county.——Dr. John I. Clark, Santa Ana, has been appointed a member of the board of managers of the Southern California State Hospital, Patton.——Dr. Newell K. Foster has been appointed medical inspector of the schools of Oakland.

ILLINOIS

Pure Food Regulation.—The city council of Rock Island, on June 21, passed an ordinance regulating the sale of ice cream, and fixing a license fee of $5 for the sale of it.

News About Hospitals.—The new Graham Hospital, Canton, erected at a cost of $30,000 is completed and ready to receive patients.——The cornerstone of St. Mary's Hospital, Centralia, was laid by Rt.-Rev. W. C. Luce, vicar general of the diocese of Belleville.

Awarded Damages.—In the case of Dr. Ernest Mammen, Bloomington, against whom suit was brought for $5,000 by Mrs. Carrie Smith, who charged that the defendant had performed an operation on her at the Brockay Hospital and had left a sponge in the abdominal cavity, the jury is said to have returned a verdict in favor of the plaintiff, awarding damages at $1,500.

Personal.—Dr. Albert S. Green and family, Rockford, have returned after five months abroad.——Drs. Joseph Robbins, Levin H. A. Nickerson, Kirk Shawgo, Clarence A. Wells, Ernest Zimmerman, Robert J. Christie and Robert J. Christie, Jr., William W. Williams, Charles D. Center, William S. Knapheide, Frederick M. Pendleton, Thomas B. Knox, Alfred A.

Whipple, John H. Rice, Edmund B. Montgomery and Melinda C. K. Germann have been appointed to the medical staff of Blessing Hospital, Quincy.

Not Guilty.—The indictment of murder against Dr. Cora L. Reed, Rock Island, was dismissed in the circuit court on motion of the state's attorney, June 21. The indictment was based on the charge of the performance of a criminal abortion.——The suit brought by the State Board of Health, on complaint of Kendall county physicians, against John Church, a medicine peddler, is said to have been decided in favor of the defendants at Oswego, June 27.——Dr. Charles W. Johnson, Litchfield, charged with performing an operation for criminal abortion, was found not guilty of the charge, June 27.

Chicago

Increase Directors.—The German Hospital, Chicago, announces an increase of directors from ten to fifteen.

New Hospital.—Plans are being completed for an addition to the Norwegian-Lutheran Deaconesses' Home and Hospital, to cost $75,000.

Personal.—Dr. Jabez D. Hammond fell while descending the stairs from his office, July 8, and fractured his left leg at the ankle.——Drs. John Guerin and Jeremiah H. Walsh have been appointed school trustees.——Dr. E. Lyman Denison had his knee dislocated and two ribs fractured in a street car accident July 8.——Dr. Wesley H. Peck sailed for Europe July 7.——Dr. Albert H. Hoy and family returned from Europe July 5.

Clean Milk for Children.—The milk commission of Chicago has issued a leaflet entitled, "How to Take Care of the Baby." The commission has as its object to give to the children of the congested districts, pure clean wholesome milk at prices below cost in order to bring it within the reach of those for whose benefit it is produced, and to furnish information, instruction and advice to mothers in reference to the care and feeding of their young children.

The Babies' Crusade.—The finance committee of the city council has sanctioned the expenditure of $10,000 by the Department of Health for the summer care of infants. The city has been divided into districts, each having one or more doctors or nurses, and house-to-house visiting is to be carried on, the aim being to instruct mothers, and supply medical aid and actual nursing when absolutely necessary. Card calendar reports are to be filed daily with the Department of Health, which is to be the clearing-house for the city.——Three new fresh-air stations for sick babies of Chicago were opened by the United Charities, July 1, the first on a roof in the congested district of South Chicago, another at Henry Booth House, and the third on the roof of the Northwestern University Settlement.——Camp Good Will, Evanston, opened for the season July 10.——The Gads Hill Camp, north of Lake Bluff, is now in active operation with about 300 in attendance.——The *Daily News* Sanitarium began the work of its twenty-third season, June 28. On the same day, the Chicago *Tribune* Summer Hospital at Algonquin was opened for the season.

INDIANA

Personal.—Dr. David C. Peyton, Jeffersonville, who has been appointed general superintendent of the Indiana Reformatory, has resigned as secretary of the Clark County Board of Health. Dr. W. Marshall Varble has been named as Dr. Peyton's successor.——Dr. William H. Wagoner has been appointed a member of the board of health of Peru.

Society Election.—At the closing session of the Grant County Medical Society for the year, held June 24, Dr. James A. Mattison, National Military Home, was elected president; Dr. John M. Toney, Van Buren, vice-president; Dr. Marshall T. Shively, Marion, treasurer; Dr. Otis W. McQuown, Marion, secretary, and Dr. Charles J. Overman, Marion, censor.

Hospital News.—The contract for the erection of the proposed state tuberculosis sanatorium, on the site near Rockville, has been awarded to a Terre Haute company for $79,841.72.——The State College Hospital, Indianapolis, connected with the Indiana University School of Medicine, may be closed, as it is said not to be needed for clinical purposes and as it has not been paying expenses for some time.——Drs. Charles C. Morris, Rockville; Robert F. Hester, Bloomingdale; E. Albert Evans, Rosedale; Alvin A. Williamson, Marshall, and A. Birch Lockridge and Raymond E. Swope, Rockville, make up the Parke County Hospital Committee.——Nearly $5,000 has thus far been secured by the committee soliciting funds for St. Joseph Hospital, Logansport.——The Frankfort Tuberculosis Sanatorium has been incorporated with a capital stock of $10,000. Drs. Charles Chittick, Albert H. Coble, and James W. Hadley are among the incorporators.

IOWA

Hospital Notes.—Ground has been broken at the State Sanatorium for the Treatment of Tuberculosis at Oakdale, for eight new cottages for patients, and a large dormitory for help. The building will cost $50,000 when completed and the capacity of the institution will be increased to 150.

Sanatorium Report.—The State Tuberculosis Sanatorium near Iowa City has completed its first year of work. During the year 236 patients were received for treatment, 106 of whom were from twenty to thirty years of age, and of these, 30, or 14 per cent. were in the incipient stage. Of those remaining over two months, 80 per cent. were discharged apparently cured. Of the more or less advanced cases, there were 203, and those who remained in the institution more than two months, left greatly improved in condition. Dr. H. E. Kirschner, the superintendent, hopes to have the capacity of the institution increased to 125. The contract for the new buildings at the sanatorium have been let to a Marshalltown firm for $36,775.90. The improvements include a large two-story building for employés, a cottage for the superintendent, a kitchen cottage, a medical cottage, and a one-story patient's cottage. With the balance of more than $10,000 remaining from the appropriation, five additional one-story patient's cottages will be added, thereby nearly doubling the capacity of the institution.

KANSAS

Personal.—The new board of health of Wichita is composed of Dr. Frederick H. Slayton, city physician, police surgeon, and secretary, and Drs. Jacob Z. Hoffman and James W. Cave.——Dr. Robert H. Smith, Oberlin, has been appointed coroner of Decatur county.

Sanitation and Hygiene Taught.—Dr. Samuel C. Emley, Lawrence, has been granted a leave of absence for two years by the University of Kansas, and will undertake a propaganda for sanitation and hygiene throughout the state, lecturing and showing a sanitary exhibit at all towns which make application.

State Medical Boards.—At a meeting of the State Board of Medical Examiners, held in Kansas City, June 12, Dr. Henry A. Dykes, Lebanon, was elected president, and Dr. Franklin P. Hatfield, Olathe, secretary.——At the meeting of the State Board of Health, in Topeka, June 2, Dr. Charles H. Lerrigo, Topeka, was re-elected president; and Dr. Samuel J. Crumbine, secretary.

Hospital Notes.—The trustees of Bethany Hospital have selected a site for the new building near Twelfth street and Central avenue, Kansas City, on which they expect to erect a hospital to cost $150,000, $35,000 of which has already been secured.——It is announced that $14,100 of the $15,000 required for the erection of the new Episcopal Hospital, Selma, has been secured.——The opening reception of the Sterling Hospital was held July 2.

MARYLAND

Hospital Notes.—The Government Naval Hospital, Annapolis, is to be enlarged by the erection of a modern dwelling to be occupied by the surgeon in charge; by two other dwellings for the junior medical officers, by quarters for the trained nurses, and a stable for the ambulance horses. There are also now under construction two wings to the main structure and a sun parlor.——The Children's Country Hospital at Catonsville, near Baltimore, for the treatment of crippled children, will be enlarged and incorporated, and pay as well as charity patients will be admitted. Dr. William S. Baer, Baltimore, is the physician in charge.

Personal.—Drs. W. Preston Miller, Hagerstown; H. Barton Jacobs, Baltimore, and Prof. J. Mark Baldwin, of the department of psychology, Johns Hopkins University, have sailed for Europe.——Dr. Bernard Brown, Jr., Annapolis, was operated on for appendicitis at University Hospital, Baltimore, June 30.——Dr. Robert P. Bay, superintendent of University Hospital, Baltimore, has been appointed a captain and assistant surgeon for the medical corps of the National Guard of Maryland, and assigned to duty with the Fifty Infantry, vice Dr. Gordon Wilson.——Dr. Thomas J. O'Donnell has been appointed police surgeon of Baltimore, vice Dr. Ransom R. Norris.——Dr. Joseph W. Holland, demonstrator of anatomy in the University of Maryland, has been appointed associate professor of anatomy.

Violation of the Food Laws.—In an interview, Dr. Marshall L. Price, Baltimore, secretary of the State Board of Health, says that preserves, catsups, peppers, mustards, and other spices, and many kinds of drugs are put up here and sold here, which could not cross the state line without violating the federal food and drugs act. Without proper legislation and means of enforcing such legislation, the homes of Maryland

are helpless. The act of 1890 gives the board power to prevent adulteration and misbranding of foodstuffs, but only allows $2,500 to carry out the law. Ten thousand dollars would be needed annually for effective work, or else a provision to turn fines into the treasury of the board for its expenses. Only two inspectors can now be employed. There are 71 abattoirs alone in Baltimore. He says that cotton-seed oil comes into the state properly labeled, is here relabeled as pure olive oil and sold as such. There is no adulteration of canned vegetables.

Baltimore

Personal.—Dr. Charles D. Snyder has been appointed associate in physiology, Dr. Leonard G. Roundtree, instructor in experimental therapeutics, Dr. Arthur H. Koelker in chemistry, Dr. Herbert M. Evans in anatomy, and Dr. Milton G. Winternitz in pathology in Johns Hopkins Medical School.——Drs. William W. Ford and Ridgeley B. Warfield have gone to Europe.——Dr. DeWitte B. Casler, resident gynecologist at Johns Hopkins Hospital, has resigned.

University Appointments.—The following faculty appointments have been made at the University of Maryland School of Medicine: Dr. Samuel C. Chew, emeritus professor of medicine; Dr. Charles W. Mitchell, professor of medicine and diseases of children; Dr. Arthur M. Shipley, professor of therapeutics and surgical pathology; Dr. Harry Adler, clinical professor of medicine; Dr. Joseph W. Holland, associate professor and demonstrator of anatomy, and lecturer on clinical surgery; Dr. Howard J. Maldeis, lecturer on histology and embryology; Dr. William D. Scott, instructor in genitourinary surgery; Dr. J. Dawson Reeder, instructor in proctology; Dr. John F. Hawkins, instructor in neurology, and Dr. Frank S. Lynn, assistant demonstrator of anatomy, all of Baltimore.

MASSACHUSETTS

Personal.—Dr. Milton J. Rosenau, Washington, D. C., has been elected professor of hygiene and preventive medicine at Harvard Medical School.

A New Field in Tuberculosis Work.—Alexander M. Wilson, who succeeded Edward P. Bicknell as superintendent of the Chicago Bureau of Charities last fall, has resigned to undertake in Boston an open-air boarding house in which convalescent consumptives may attend to business while still living the outdoor life of the shack dweller.

Traced Fever to Milkman.—Investigation by the board of health of a number of cases of typhoid fever at Campello has traced their origin to the employé of a milk dealer who worked on the farm of the dealer for a week before being stricken with the disease. Dr. Frederick J. Ripley, Brockton, of the board, says that there is no epidemic, and that of the seven cases traced to the farm employé the last was reported June 20. There is no evidence of any further spread of the disease from this source.

MICHIGAN

Receives Loving Cup.—Dr. William D. Scott, Ithaca, was the guest of honor at a banquet tendered by the Gratiot County Medical Society, May 28, at which a silver loving cup was presented to Dr. Scott on behalf of the society, by Dr. Stiles Kennedy.

Laboratory Opened.—One of the most complete general laboratories in the country for original research work was opened June 16, at the Woman's Hospital and Infants' Home, Detroit. The laboratory is the gift of Mrs. Grace Whitney Hoff, who gave $1,000 for the installment of the laboratory, and who has provided an endowment of $500 a year for five years for its maintenance. Dr. Carl S. Oakman is to be pathologist in charge of the laboratory, Dr. Willard H. Hutchings is bacteriologist, and Dr. Joseph Sill, consulting bacteriologist.

MISSOURI

Asylum Superintendent Removed.—It is announced that Dr. William F. Kuhn, superintendent of State Hospital No. 2, St. Joseph, was summarily removed from his position by the board of managers, July 1, and that Dr. Frederick A. Patterson has been appointed acting superintendent to fill the temporary vacancy.

Personal.—Dr. Franklin H. Broyles, Bethany, has been appointed a member of the pension board and local surgeon to the Burlington System.——Dr. Robert E. Keaney, De Soto, has been elected superintendent of State Hospital for the Insane No. 4, Farmington, and Drs. Henry Lloyd and Frank S. Weber, St. Louis, have been appointed assistant physicians. ——Dr. and Mrs. James E. Logan, Kansas City, sail for Europe July 20.

Public Health Legislation Favored by Senate.—Dr. William S Allee, Olean, chairman of the Committee on Eleemosynary Institutions and Public Health in the State Senate, calls attention to an error in the news from Missouri in the issue of May 1. It was there stated that "House Bill 456, to eliminate hospitals and poor houses as sources of supply for anatomic material, thereby reducing the latter four-fifths, has passed the senate and is now in the hands of the House Committee on Public Health and Legislation." Dr. Allee states that the bill passed the House, was sent to the Senate, referred to the committee of which he was chairman, which reported the bill adversely, and it was not voted on in the Senate. A companion bill introduced in the Senate was killed by an adverse report from the same committee.

St. Louis

Date of Next Annual Session.—The next annual session of the American Medical Association will be held in St. Louis, June 7 to 10, 1910.

New Medical Buildings.—The work on the new buildings for the medical department of Washington University will begin in a short time and the buildings will be ready for occupancy in the fall of 1910. They will be occupied by the classes of the first and second years.

Personal.—Dr. Cleveland H. Shutt has been reappointed assistant superintendent at the City Hospital.——Dr. Frederick G. A. Bardenheier has returned from Europe.——Drs. Bransford Lewis and Charles H. Hughes have gone to Europe.

NEBRASKA

State Board of Health Organized.—The new State Board of Health organized at Lincoln, July 3, and elected the following officers: President, Dr. Clifford P. Fall, Beatrice; vice-president, Dr. Herschell B. Cummins, Seward; secretary, Dr. E. Arthur Carr, Lincoln, and treasurer, Dr. Archibald L. Muirhead, Omaha.

NEW JERSEY

Rooms Endowed at Seashore Home.—Two rooms have just been endowed at the Children's Seashore Home, Atlantic City, one by Robert L. Montgomery to be known as the Hope Montgomery Room, the other by Mrs. J. Campbell Harris, in memory of her father, the late Thomas H. Powers.

State Board Election.—At the annual meeting of the State Board of Medical Examiners, held at Newark, July 6, the following officers were elected: President, Dr. Charles A. Groves, East Orange; secretary, Dr. Edmund L. B. Godfrey, Camden, and treasurer, Dr. Armin Uebelacker, Morristown.

Day Camp for Tuberculosis to Be Opened.—Orange Camp for tubercular patients, located near Orange Memorial Hospital, is to be opened this month. For the present two tents will be used. Dr. Ralph H. Hunt is to be at the head of the medical staff and the visiting nurse for the Anti-Tuberculosis Society of the Oranges will devote her entire time to the camp, which will accommodate from six to eight patients.

NEW YORK

Personal.—Dr. Henry L. Elsner, Syracuse, has gone to Europe.

Research Laboratory.—Plans have been filed for a laboratory for private physiologic research to be erected on the roof of the north wing of the College of Physicians and Surgeons. There will be a dozen rooms for the various branches of research work and two rooms for operating experiments.

Summer Resorts Inspected.—Inspectors of the state department of health have begun their annual inspection of the various summer resorts in the state for the purpose of gathering information relative to the sanitary condition of those places. When insanitary conditions are reported notice is served on the owners and necessary changes are ordered.

Tuberculosis Hospital Has Financial Troubles.—The Fiscal Supervisor of State Charities, sent to Raybrook to investigate the alleged shortage of accounts at the State Tuberculosis Hospital, is said to have reported that the books show alterations aggregating $9,856. Attention was first called to laxity of management last January and a report was sent to the governor at that time.

More Money for Hospitals.—The will of the late Mrs. Maria Tailer, just filed for probate, bequeaths $25,000 to the New York University and Bellevue Hospital College, to be used for the dispensary, in memory of William H. Tailer. The Children's Aid Society and the New York Orthopedic Dispensary and Hospital each receive $5,000. The Home for Incurables also receives $7,500 for the endowment of a bed in perpetuity to be known as the William Watson bed, in memory of the father of the testatrix.

Few Children Have Sound Teeth.—The Health Department has just completed the examination of 500 children between the ages of fourteen and sixteen years who have received their "mercantile papers." Of these 486 were found to have un-

sound teeth. There were 2,808 unsound teeth discovered, of which 2,551 might, with proper treatment, be saved. Only 25 of the 500 children had ever had dental treatment. The Children's Aid Society has on foot a movement to establish dental clinics in the public schools. Physical examinations of school children were carried on by the Health Department from September 1, 1908, to March 31, 1909, and during this time 386,744 children were examined. Of this number 290,167 were found to be in need of treatment of a general character, and 206,290 had defective teeth.

New York City

Off for Europe.—Dr. and Mrs. Albert H. Ely, Dr. and Mrs. Daniel A. Harrison, Dr. William B. Coley, Dr. and Mrs. LeGrand N. Denslow, Drs. Louis L. Seaman, Meyer L. Rhein, Edward A. Bogue and Charles G. Kerley have sailed for Europe.

High Mortality from Sunstroke.—There were 32 deaths from sunstroke during the week ended July 3, more than during the last week in June for any other recent year. The death rate for the above mentioned week was 16.48 against 15.70 for the corresponding week of last year. There was a slight increase in the number of deaths from heart disease, pneumonia, tuberculosis, Bright's disease, diphtheria, measles and typhoid fever.

West Side Ambulance Service.—Property at 364 and 366 West Fiftieth street has been purchased and will be remodeled into a house of relief for ambulance service for the upper West Side under control of Bellevue and the Allied Hospitals. This step has been made possible by the appropriation of $32,300 by the Board of Estimate and Apportionment. Two automobile ambulances, a staff of physicians, and six or eight beds will complete the relief station.

OHIO

New Tuberculosis Hospital.—The commissioners of Warren county have purchased the Rudy farm of 86 acres for $6,500 as a site for a county tuberculosis hospital.

Hospital Staff Election.—The medical and surgical staff of St. Luke's Hospital, Cleveland, met for organization June 22, and elected the following officers: President, Dr. Joseph F. Hobson; vice-president, Dr. Maurice D. Stepp; secretary, Dr. Edward S. Lauder; executive committee, Drs. Milton J. Lichty, Samuel W. Kelley and Joseph F. Hobson, and examining committee, Drs. Roland E. Skeel and John N. Lenker.

PENNSYLVANIA

Philadelphia

Home for Infants Donated.—Mr. and Mrs. Harry Miller have donated a house and lot 25x140 feet to be used as an infants' ward and nursery to the Hebrew Sheltering Home and Day Nursery. The building is to be known as the Mrs. Harry Miller ward.

Mortality Decrease.—The report of the Department of Public Health of the first six months of this year shows that 13,264 deaths were reported, a decrease of 677 from the corresponding period of last year. The death rate for the first six months of 1908 was 18.19 per 1,000 of population, but for the same period of this year the death rate was 16.94 per 1,000.

Personal.—Drs. M. H. Cryer, Wendell Reber, J. H. Musser, Edward Martin, F. H. Dercum, Theodore H. Weisenburg, Charles P. Grayson, George C. Stout, Arthur V. Meigs, Melvin M. Franklin and Charles F. W. Plass are among those who will spend part of the summer in Europe.——The University of Pennsylvania has conferred the degree of LL.D. on Dr. Charles B. Penrose.

Hospital Secures Property.—The officials of the Children's Hospital have secured a half a block of land with a frontage of more than 200 feet on Bainbridge and Fitzwater streets and nearly 350 feet on Eighteenth street. The authorities plan to erect as soon as possible a modern steel and concrete fireproof building, but until funds are available for this purpose the lot will be converted into a playground for the benefit of the children in the southwestern part of the city. Since the foundation of the Children's Hospital in 1855 the institution has moved three times, in each instance obtaining or constructing a larger building.

WISCONSIN

Personal.—Dr. George V. I. Brown, Milwaukee, has gone to Europe.——Dr. William H. Ellis has been elected health officer of Barron.

Decision Against Medical Board.—Raymond Puddicombe, a "chiropractor" of Beloit, charged with practicing medicine, surgery, and osteopathic manipulation, was acquitted by the jury, May 27, and discharged. The action was brought by the State Board of Medical Examiners. The case will probably be appealed.

District Election.—At the annual meeting of the Ninth Councilor District Medical Society, held in Stevens Point, Dr. David T. Jones, Wausau, was elected president; Dr. J. Willis Rockwell, Grand Rapids, secretary; and Dr. Ole T. Hougen, Grand Rapids, councilor.

Antituberculosis Association Organized.—On June 1, the Madison Antituberculosis Association was organized to establish a hospital or sanatorium for tuberculosis, to better hygienic conditions, to promote the recovery of tuberculosis persons, and to assist in educating the public. Dr. Charles H. Hall was elected treasurer of the association.

State Society Elects.—At the sixty-third annual meeting of the Wisconsin State Medical Society, held in Madison, June 29 to July 2, the following officers were elected: President, Dr. Edward Evans, LaCrosse; vice-presidents, Drs. John S. Walbridge, Berlin; George V. Mears, Fond du Lac, and Truman E. Loupe, Eureka; secretary, Dr. Charles S. Sheldon, Madison (re-elected); treasurer, Dr. Sidney S. Hall, Ripon; delegate to the American Medical Association, Dr. Lewis F. Bennett, Beloit; alternate, Dr. Frank S. Wiley, Fond du Lac; committee to name members for State Board of Health, Drs. Warren B. Hill, Milwaukee; Thomas H. Hay, Stevens Point, and Charles R. Bardeen, Madison; committee on tuberculosis, Dr. Cornelius A. Harper and Mazyck P. Ravenel, Madison, and Drs. Gilbert E. Seaman, J. M. Bethel, and Charles H. Stoddard, Milwaukee; delegate to the Council on Medical Education of the American Medical Association, Dr. Warren B. Hill, Milwaukee, and delegate to the National Legislative Council of the American Medical Association, Dr. Byron M. Caples, Waukesha. By unanimous vote, the society refused to sanction the vasectomy of confirmed criminals in the state.

GENERAL NEWS AND COMMENT

Philippine Medical Association Committees.—President Benito Valdez of the Philippine Medical Association has appointed the following committees: Scientific work—Drs. William E. Musgrave, U. S. P. H. and M.-H. Service, Manila, and Edwin D. Kilbourn, U. S. Army; public policy and legislation—Drs. A. J. McLaughlin, Henry D. Kneedler, Manila, and Fernando Calderon, Manila; publications—Drs. Philip E. Garrison, U. S. Navy, and James M. Phalen, U. S. Army; and medical education—Drs. Paul C. Freer, Philip K. Gilman and Manuel Guerrero.

The McCosh Memorial.—The *Andrew J. McCosh*, a yawl fitted with auxiliary engines, given by Princeton men throughout the world as a memorial to the late Dr. Andrew J. McCosh, New York City, as a gift to the Labrador Medical Mission, of which Dr. Wilfred T. Grenfell is superintendent, sailed for its new destination June 29.

Health of San Juan.—The report of the bureau of health of San Juan, Porto Rico, for the fiscal year 1907-1908, by Dr. Tomas Vazquez, director of health, urges strongly the creation of the position of sanitary engineer. He calls attention to the fact that no money has been appropriated for the work of emergencies, such as epidemics. The sanitary condition of the island is unsatisfactory, owing in a great measure to the habitual indifference of authorities and individuals so far as hygiene is concerned, this being due to ignorance, and to be remedied only by the hygienic education of the people. The death rate per 1,000 for the fiscal year was 22.97 as opposed to 26.17 for the previous year. The mortality among children below one year of age was 48.18 per cent., and of children below the age of two, 34.10 per cent. This enormous mortality is due chiefly to artificial nursing and to the adulteration of milk. Duringthe year, there were admitted to the sanatorium of the Antituberculosis League of Porto Rico at Seboruco, near San Juan, 68 patients, of whom 9 were discharged cured and 35 improved, and 14 died, 10 remaining in the hospital at the close of the year.

Conference on Infant Mortality.—A conference on the prevention of infant mortality will be held in New Haven, November 11 and 12, under the auspices of the American Academy of Medicine. The session on medical prevention will be presided over by Dr. J. H. Mason Knox, Jr., Baltimore, with Dr. Richard A. Urquhart as secretary. The session on philanthropic prevention will have Dr. John T. Devine, New York City, as chairman, and Miss Lilian Brandt, secretary. Mr. Homer Folks, secretary of the New York State Charities' Aid Association, will be chairman and Miss Mary Vida Clark, New York City, secretary of the session on institutional prevention, and Prof. C. E. A. Winslow will preside over the session on educational prevention, with Henry I. Bowditch, Boston, as

secretary. The American Academy of Medicine has decided to raise a fund for the publicity and promotion of the conference, and intends to agitate and exploit the project by both the medical and lay press, in order that the conference may be aided to do its work effectively, that the activities may continue by the promotion of a national society, composed of both professional men and laymen.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 3, 1909.

The Financial Prospects of Medicine

For many years the physicians of this country have had to lament the fact that the practice of medicine is by no means as lucrative as it used to be and that the incomes now earned are inadequate. Many causes—overcrowding of the profession, improved hygienic conditions, and the springing up in the large towns and cities of a class of cheap physicians ("dispensary doctors") who run "cash practices" at ridiculously low fees, prescribing chemists, and the competition of the hospitals, to which there is an increasing tendency on the part of the public to resort—have been assigned for this. The *British Medical Journal* has recently published a remarkable investigation which for the first time gives accurate statistics on the question of the overcrowding of the profession. As has been reported from time to time in THE JOURNAL the annual increase of the profession has shown in the last few years a continuous fall. But no information was forthcoming as to whether the proportion of physicians to the general population was increasing at the same time, and it was impossible to say whether the overcrowding was on the increase. By taking the estimated population of the country from year to year, calculated by logarithms on the basis of the decennial increase ascertained by the census, and by taking the number of physicians in practice at the middle of each year as a mean between the numbers on the Medical Directory (which is issued at the beginning of each year) the *British Medical Journal* has furnished a reliable calculation on the point. The results are most instructive. They show that in 1881 the population of England and Wales was 26,000,000, and the number of physicians in practice was 15,308, a ratio of population to physicians of 1,700 to 1. In the following years this ratio shows a gradual fall, reaching 1,516 in 1891 and 1,381 in 1901. Then a gradual rise commenced, the figures being in the last seven years (1902-1908) 1,384, 1,389, 1,393, 1,393, 1,396, 1,401, 1,407. The increase in these years may be explained by the fact that in 1890 the length of the medical curriculum was increased from four to five years, thus becoming more arduous and more expensive. But the increasing pressure of overcrowding must also be a factor. It is unfortunate that the *British Medical Journal* did not push the inquiry a stage farther and instead of stopping at the number of possible patients per medico, investigate the question of the number of illnesses to each physician. As a whole the profession is in much inferior financial position to what it was twenty years ago. It has been calculated that the average annual income of the physician does not exceed $1,000.

Health of the Navy

The health of the British navy has shown a steady improvement from year to year, which is due largely to improved hygiene. Not only general sanitation, but food and cookery have been greatly improved. In 1907, the report for which has recently been issued, there were only 3 deaths from heat stroke, and malaria declined 50 per cent. The tracing of Malta fever to the milk of the goat by the commission presided over by Colonel Bruce of the Royal Army Medical Corps has eliminated a prolific cause of illness in the Mediterranean. Venereal diseases still take a great toll. The total number of days' service lost from this amounted in 1907 to 329,326, and the average daily number of men rendered ineffective amounted to 1,000. The total death rate was lower than it has ever been before. In 1858 the death rate from all causes amounted to 25.8, and from disease alone to 22 per 1,000 men; in 1907 it had declined to 3.35 from all causes and 2.26 from disease.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 1, 1909.

Professor Pozzi's Report on the Hospitals and Surgeons of the United States

Dr. Pozzi, professor of clinical gynecology in the College of Medicine of Paris, who recently went to America to represent France at the centenary of ovariotomy in the United States (THE JOURNAL, April 24, 1909, lii, 1344) has just made to the *Société de l'internat. des hôpitaux de Paris* a report of his impressions gathered in visiting the hospitals of the American cities. He says that American surgeons do not know France well enough and that French surgeons do not know America well enough. The former go to Germany to finish their studies; the French do not go to America, not only because of the long voyage, but also because of the prejudice that American surgeons are very rash charlatans. Pozzi declares that he has been struck by the science and skill of his transatlantic colleagues.

He regretted that all European architects, and in particular French architects, do not go to America to study hospital construction. Among other useful hints they would be able especially to take lessons on the art, almost unknown among us, of methodical and permanent ventilation of the rooms, large or small, thanks to which an equitable temperature and a very great purity of atmosphere are maintained everywhere. After a number of other improvements that he noticed in American hospitals, Pozzi mentioned particularly the autonomy of these hospitals, which he considers their most distinctive trait. In Paris the hospital is a mere dependency of an immense administration, while in the United States almost all the hospitals are private foundations, sometimes made possible by a religious or a philanthropic association, sometimes by private donation so that each hospital belongs to a group of citizens who take pride in having model establishments. There is much more interest taken in hospitals in America than in France. Among us the excessive administrative centralization and the development of the powers of the paternalistic state have accustomed us to hand over to the government the care of all the public services, among which we include charity. That is why donations to hospitals, so frequent in America, are so rare in France.

Professor Pozzi is especially enthusiastic over the personnel of the nursing staffs of the American hospitals. Neither in Germany or in England—and still less in France—is there anything to compare with the work done by the American nurses and the orderlies. This is because of the social environment from which the nurses are recruited; while in France the *surveillante* comes from the inferior classes, in the United States the nurse is a lady. She is conscious of her value; she is on an equality with every one, the director, the physicians, the patients. An American nurse has a pecuniary situation three or four times better than that of the *surveillantes* in our hospitals since in Paris a *surveillante en chef* (head nurse) earns only 80 france (16 dollars) a month.

Professor Pozzi criticizes some things in the organization of American hospitals, especially the arrangement in regard to paying patients. He was astonished to see the largest space in the hospitals given over to rooms for paying patients. Certain hospitals are entirely devoted to paying patients. This criticism seems to me unjustified; for, although this condition is an anomaly among us, since our hospitals belong to the public charities, it is perfectly natural in the United States, since American hospitals are most of them of private foundation.

Professor Pozzi then discussed the question whether American surgeons are on the same level with European surgeons. I give his opinion without inquiring whether his short stay in America entitled him to it. "The average American surgeons are not equal to our surgeons, owing to the imperfect course of study which the former follow, and the ease with which they obtain diplomas, but above these there is a very respectable class. At the summit of the profession are surgeons who yield in no respect to the *élite* in England, Germany and France."

What Pozzi criticizes especially is the fact that physicians and surgeons are chosen by the managing boards of hospitals, composed of excellent people, but scarcely competent to make such selections. Social and family connections have great influence in the choice of physicians and surgeons. Pozzi therefore declares that he prefers our system of the *concours* in spite of the recent criticism on it.

He then spoke of the "reprehensible audacity" and the "charlatanism" of American surgeons, and the extravagant articles on surgeons published by American journals. But Pozzi appears to me to ignore the fact that this shameless charlatanism is severely reprobated by the better part of the medical profession of the United States, a fact which is sufficiently indicated by the systematic and vigorous campaign that THE JOURNAL is carrying on against every class of charlatans. For my part, I could wish most earnestly that there were in France a medical journal performing the same meritorious task as energetically.

Last, Pozzi spoke of the surgical work of the brothers Mayo. In Pozzi's view the great surgical center is not New York, Chicago, or Baltimore, or any other great city of this immense

territory, but Rochester, Minn. "I have nowhere had," said he, "a more intense realization of American energy than in that little peaceful town of Rochester. Rochester is indeed a surgical factory of immense output, comparable with the great American industrial manufactories."

Election of Dr. Capitan to the Academy of Medicine

In its session of June 29, the Academy of Medicine elected Dr. Capitan to membership to replace Dr. Blache, who died last December. Dr. Capitan has for a long time specialized in the study of prehistoric anthropology. He has been since 1898 professor at the School of Anthropology, where he succeeded Dr. Gabriel de Mortilet. Last year he was given the newly created chair for the study of American antiquities at the College of France.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, June 26, 1909.

Personals

At the end of this semester Professor Schmidt-Rimpler, the well-known director of the eye clinic at Halle, will resign his position. His successor is Prof. E. v. Hippel of Heidelberg.

A department of animal chemistry has been lately established in the physiologic institute of the agricultural college of this city, whose director is the noted physiologist, Professor Zuntz. Professor Neuberg, hitherto assistant of Professor Salkowski in the chemical department of our pathologic institute, has assumed the direction of the new department.

Dr. Langerhans died a few days ago in Berlin at the age of 89. The deceased was a friend of Virchow and was closely associated with him in political and municipal activity. He was for many years a member of the Reichstag and of the Prussian house of delegates (Abgeordnetenhaus). In 1848 in connection with many noted men, especially Carl Schurz, who later reached so high a position among you, he took part in the struggle for liberty. Langerhans was also from 1893 to 1907 the president of the Berlin city council. He was the successor of Dr. Stryck, who was also a physician. His services to this city were recognized by the granting of the freedom of the city, an honor which few men besides him have reached (Bismarck, Robert Koch, etc.).

A New Municipal Hospital

At Buch, a manorial estate belonging to the city, situated in a suburb of Berlin, a hospital for old people was opened a few weeks ago. Already on the estate are a large insane asylum of about 2,000 beds and a home for pulmonary invalids. The new hospital has about 1,500 beds. The cost of building was about $1,560,000 (6,500,000 marks). There are in the city of Berlin altogether 2,286 beds for invalids which cost annually $271,680 (1,132,000 marks). The insane asylum at Buch (the third in the city) is to have a second addition of a ward for 75 patients. According to the plans the cost will be about $2,300 (9,400 marks) per head. The great expense is occasioned chiefly by the large air space of 1,600 cubic feet (50 cbm.) for each patient.

First German Congress for the Care of Infants

The first German congress for the care of infants convened in Dresden in the middle of June. Three subjects were taken up: 1. The present status of measures for reduction of infantile mortality and promotion of infantile hygiene (*Säuglingsfürsorge*). 2. A report on maternity institutes and homes for puerperæ and infants, as a means of reducing infantile mortality. 3. Report on the measures for encouragement of lactation. On the first subject I have frequently written so that I may omit it. In the second report the first speaker, Privy Counselor Dietrich of the ministry of education (*Kultusministerium*), emphasized the necessity of greater protection to pregnant and lying-in women. Most of the lying-in hospitals discharge the mother and child frequently only six days after delivery and in consequence invalidism of the mother as well as the death of the child is often occasioned. It is therefore necessary to increase the number of homes for lying-in women and infant asylums. The mother and child should remain in the asylum at least four weeks after delivery. The second speaker Professor Salge of Göttingen advocated among other things a nurses' protective law. A mother should not be allowed to undertake service as a wet nurse before the expiration of three months after delivery. The third speaker, Prof. v. Franqué of Giessen, reported that 63,000 children in Germany die before birth and 80,000 die in the first fifteen days of life. The large number of still births which is greater in Germany than in many other countries is attributable mainly to lack of care during pregnancy and imperfect hygiene during delivery. It is recognized that lack of care of the pregnant woman leads to imperfect development of the child; such children often weigh a pound (500 gms.) less than normal. About 10,000 women in Germany die annually in childbed; 50,000 suffer from puerperal fever and are thereby prevented from suckling their children. Sixty thousand infants are in this way deprived of their natural nourishment by injury at birth. For this reason the extension of institutional care to all who need it should be demanded. The indications for receiving these persons into institutions are both social and medical. Among the first is to be reckoned illegitimacy as well as the delivery of all mothers who have at their disposal only one room. In a medical way the admission is indicated not only for cases which require operative treatment, but because the timely reception will often avoid the necessity of operation. From this point of view the institutions would need to provide for about 210,000 births, i. e., the number of institutions at present available for this purpose would need to be multiplied fivefold. The lying-in hospital has also the greatest significance for the infants. About 1.4 per cent. of infants die from infection of the umbilicus; while in all of Giessen 3.4 per cent. of infants died from this infection, the mortality in the Giessen maternity was only half as great. Professor v. Franqué demands that the unmarried mother shall remain in the lying-in home three months, for a three months' nursing is requisite, if the mortality of infants is to be reduced. In Germany there are only ten institutions which keep the mothers long enough before and after delivery. In the third report the importance of suckling for diminishing the mortality of infants was again thoroughly discussed. The introduction of nursing premiums and the insurance of motherhood were recommended. I have repeatedly referred to these matters.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, June 26, 1909.

Increase in Consumption of Meat

In Vienna the general consumption of meat is steadily increasing, although last year fruit and vegetables were to be had nearly for the asking. According to the statistical report of the market supervision board, the average yearly consumption of meat was in 1908 76.4 kilos (170 pounds) per head; in 1905 it was 74.6 kilos (166 pounds); in 1900 it was 72 kilos (160 pounds); and in 1895 it was only 70 kilos (156 pounds). The chief kind of meat used was pork and beef. The increase of meat consumption is due to two factors: increase of national wealth and increase of the working part of the population. No definite influence of the increased meat consumption on health could be ascertained unless the fall in mortality be ascribed to it.

Passing of the Phosphorus Bill

The phosphorus bill prohibiting the use of the poisonous kind of phosphorus in the manufacture of matches (noticed in THE JOURNAL, April 24, 1909, lii, 1345) has been passed and will soon become law in Austria. In 1911 the same law will be valid for both parts of Austria-Hungary. The passing of the bill is due mainly to the incessant work of medical men. The only drawback of the bill is the fact that a certain period, estimated at two years, will be permitted to the factories to adapt their manufacturing process to the new requirements.

The Boycotting of Medical Appointments by Medical Organizations

The increasing influence of medical organizations in this country has been attested recently by municipal decisions which have tried to annul the resolution of the *Reichsverband der Oesterreichischen Aerzteorganisationen* (Union of Austrian Medical Organizations) on the ground that by boycotting a medical appointment the union exceeded its rights. The union then explained its attitude in a memorandum addressed to the local authorities, and to the ministry of justice and stated the conditions under which it would declare a boycott. A boycott is merely an appeal to all medical men to abstain from accepting a certain post; it is an appeal from colleagues to colleagues, and would be issued only under three conditions: (1) when a practitioner had been dismissed from his appointment without sufficient reason; (2) when practitioners have been dismissed or have given up an appointment on account of a dispute as regards rate of payment; (3) when there were differences of opinion between doctors and corporations on the ground of ethics and principles. In several instances the union has declared boycotts and in two instances the boycotted corporations have gone to law against the union. The superior

court finally declared that a boycott could not be declared, as the union had no power to bind any one of its members or any practitioner at all. But a request could not be stopped, and thus in future the boycott might be disguised under the shape of an urgent request. The union has accepted the hint and the *Aerztekammern* (Medical Councils) have unanimously declared their approval of the attitude of the union, and have resolved to become members of the union corporatively. Thus the attack on medical concord has ended with a signal victory by the practitioners against official narrow-mindedness. The union now comprises about 80 per cent. of all practitioners of Austria, and as agitation is very vigorous we may soon have all national and racial differences covered, in this body at least, by a common interest.

Pharmacology

Fluoroform

To the Editor:—Please give the following information regarding fluoroform: 1, The chemical composition; 2, strength of the solution and dosage used in the treatment of whooping cough; 3, results as compared with bromoform; 4, name of the manufacturer; 5, references to any recent literature in regard to its use in a large number of cases. W. E. H.

ANSWER.—1. Fluoroform is a substance analogous to chloroform in which three atoms of flourin have replaced the three atoms of chlorin; formula CHF_3.

2. It is on the market in the form of an aqueous solution of the gas purporting to contain 2.8 per cent. by volume, which amounts to 0.00715 per cent. by weight. The dosage of this solution is said to be from 5 to 10 gm. and with adults as high as 30 gm. per diem given in teaspoonful doses.

3. It is claimed by some to give better results than bromoform.

4. German patents for the preparation are held by Valentiner & Schwarz, and the solution is marketed in this country under the name of fluoroformol, under the agency of C. Bischoff & Co., New York.

5. The treatment of pertussis by fluoroform is described by Paul T. Tissier (International Clinics, Vol. III, Eighteenth Series, 1908). At the meeting of the chemical society of France, May 27, 1908, V. Auger (*Bull. de la Soc. chim. de France*, 5, 7 to 11) claimed that the fluoroform water manufactured by Valentiner & Schwarz, as found in the market, contained no fluoroform, but that the gas, approximately 2.24 per cent. by volume, consisted essentially of air. He states that of the two patents, which the manufacturers hold, the first (which has expired) will produce fluoroform if the materials are absolutely dry. These materials are silver fluorid, iodoform and sand. There are, however, considerable difficulties in managing the reaction if large quantities of the substance are to be prepared. On the other hand, the second method which employs a watery solution of silver fluorid acting on iodoform in a specially constructed apparatus, according to Meslan's experiments, produces no fluoroform, but gives off a mixture of 95 per cent. carbon monoxid (CO) and 5 per cent. of carbon dioxid (CO_2). This patent is still in force. It would appear from these experiments that the manufacturers have given up the first—and efficient—process, and resorted to the second, which supplies to the patient a harmless liquid consisting of aërated water. Valentiner & Schwarz contend that the existence of carbon monoxid and carbon dioxid in their fluoroform water is impossible because the gas given off is washed in soda lye, baryta water and solution of cuprous chlorid before dissolving it in water. They say that the construction of their apparatus excludes the presence of air. They admit that in partially filled bottles traces of carbonic acid might form in the course of time.

In consideration of the uncertainty as to the method and results of manufacture of this remedy, it is evident that no certain conclusions can be drawn from clinical use at the present time. Tissier especially emphasizes the non-toxic and palatable character of the preparation which he used, which he might well do, if, as appears from analysis of the product on the market, he was giving practically nothing but water.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

PIN-WORMS (OXYURIS VERMICULARIS) IN THE APPENDIX

To the Editor:—I wish to place on record the finding of pin-worms *(Oxyuris vermicularis)* in the appendix of a female child, aged 11 years. The patient had some pain, tenderness, rigidity of rectus, temperature of 103° and pulse 120. Operation was done in twenty-four hours from onset and the appendix removed. There were no gross changes beyond marked congestion of distal end. When the appendix was opened, a ball of twelve pin-worms was found with fecal matter. Recovery was perfect; usual treatment for pin-worms failed to reveal any more during her ten days' stay in hospital. M. ALLEN, M.D., St. Johnsbury, Vt.

COMMENT:—Other similar cases recently reported are:

Hall, E. A.; *Oxyuris vermicularis* in the Appendix, *Dominion Med. Month.*, May, 1903.

Wagener, O.: *Oxyuris vermicularis* in the Intestinal Wall, *Deutsch. Arch. f. klin. Med.*, lxxxi, Nos. 3-4, 1904. Id. *Virchow's Arch.*, clxxxii, No. 1, 1906.

Hippius, A. and Lewinson, J.: *Oxyuris* and Appendix, *Deutsch. med. Wchnschr.*, Oct. 24, 1907.

Wakefield, R. W.; *Oxyuris vermicularis* Found in the Vermiform Appendix, THE JOURNAL A. M. A., June 6, 1908, p. 1904.

Thrush, M. C.: Appendicitis Due to Presence of *Oxyuris vermicularis, Med. Rec.*, New York, Dec. 28, 1908.

OPERATIONS ON THE AGED—DATA REQUESTED

To the Editor:—Having lately operated on a patient eighty years old for an ovarian cyst holding about three gallons of fluid I am anxious to know if any patient older than this one has been successfully operated on. I should be glad to have reports from any who have operated on a patient 70 years of age and over. Report age of patient, married or single, number of children, age of youngest, age at menopause, and results of operation.

R. R. KIME, M.D.,
714 English-American Bldg., Atlanta, Ga.

The Public Service

Navy Changes

Changes for the week ended July 10, 1909:

Gatewood, J. D., medical inspector, detached from the Naval Medical School, Washington, D. C., July 15, and ordered to duty on board the *Tennessee* as fleet surgeon of the Pacific Fleet.

Byrnes, J. C., medical inspector, detached from duty on board the *Tennessee* as fleet surgeon of the Pacific Fleet and ordered home to await orders.

Law, H. L., surgeon, retired, detached from the Naval Recruiting Station, Boston, Mass., and ordered home.

Payne, J. H., Jr., P. A. surgeon, ordered to the Naval Recruiting Station, Boston, Mass.

Rogan, F. M., surgeon, commissioned surgeon from Sept. 2, 1908.

Butler, C. St. J., surgeon, commissioned surgeon from Sept. 19, 1908.

Grayson, C. T., P. A. surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to duty at the Naval Medical School Hospital, Washington, D. C.

Bass, J. A., acting asst.-surgeon, detached from duty at the Naval Hospital, Philadelphia, Pa., and ordered to duty at the Naval Medical School Hospital, Washington, D. C.

Bucher, W. H., surgeon, transferred to the retired list from June 11, 1909, in conformity with the provisions of Section 1453, Revised Statutes.

French, G. R. W., acting asst.-surgeon, ordered to the Naval Hospital, Narragansett Bay, R. I.

Heneberger, L. G., medical director, detached from command of the Naval Hospital, Newport, R. I., July 15, ordered home and granted sick leave for two months.

Leach, P., medical inspector, detached from the Marine Recruiting Station, New York, N. Y., and ordered to command the Naval Hospital, Newport, R. I.

Bucher, W. H., surgeon, retired, ordered home when discharged from treatment at the Naval Hospital, Mare Island, Cal.

Peck, A. E., P. A. surgeon, unexpired portion of leave revoked, ordered to the Marine Recruiting Station, New York, N. Y.

Garrison, P. E., asst.-surgeon, detached from duty as medical zoologist for the Bureau of Science, Philippine Islands, and ordered to Washington, via the *Buffalo*, for examination for promotion.

Curl, H. C., surgeon, detached from the *Buffalo* and ordered to the Naval Hospital, Canacao, P. I.

Hoyt, R. E., P. A. surgeon, detached from the *Chattanooga* and ordered to the Naval Hospital, Mare Island, Cal., for treatment.

Downey, J. O., asst.-surgeon, detached from the Naval Hospital, Canacao, P. I., and ordered to the *Chattanooga*.

Allen, D. G., asst.-surgeon, detached from the *Buffalo* and ordered to the *Chattanooga*, temporarily.

Public Health and Marine-Hospital Service

List of changes for the week ended July 7:

Kerr, J. W., asst. surgeon-general, granted 21 days' leave of absence from July 12, 1909.

McIntosh, W. P., surgeon, granted 2 days' leave of absence from July 5, 1909. Paragraph 189, Service Regulations.

Clark, T., P. A. surgeon, granted 7 days' leave of absence from June 11, 1909. Paragraph 191, Service Regulations.

Foster, M. H., P. A. surgeon, granted 1 day's leave of absence, June 23, 1909. Paragraph 191 Service Regulations.

Ramus, Carl, P. A. surgeon, granted 1 day's leave of absence, June 10, 1909. Paragraph 191, Service Regulations.

Holt, John M., P. A. surgeon, leave of absence granted May 21, 1909 for one month from July 5, 1909, amended to read, one month from July 26, 1909.

Hart, Lasher, asst.-surgeon, granted 7 days' leave of absence from July 1, 1909.

Preble, Paul, asst.-surgeon, directed to report at Bureau on special temporary duty.

Dynan, N. J., acting asst.-surgeon, granted 1 day's leave of absence, June 30, 1909. Paragraph 210, Service Regulations.

Goldsborough, B. W., acting asst.-surgeon, granted 2 days' leave of absence from June 28, 1909.

MacCaffry, W. B., acting asst.-surgeon, granted 1 day's leave of absence in June, 1909. Paragraph 210, Service Regulations.

Rodman, John C., acting asst.-surgeon, granted 7 days' extension of leave of absence from June 17, 1909, on account of sickness.

Walker, T. Dyson, acting asst.-surgeon, granted 4 days' leave of absence from July 6, 1909.

Ward, J. La Bruce, acting asst.-surgeon, granted 10 days, extension of leave of absence from June 15, 1909, on account of sickness.

Wetmore, W. O., acting asst.-surgeon, granted 1 day's leave of absence, June 10, 1909, and 5 days' leave of absence from June 25, 1909. Paragraph 210, Service Regulations.

Wilson, J. G., acting asst.-surgeon, granted 5 days' leave of absence from July 1, 1909. Paragraph 210, Service Regulations.

RESIGNATION

Assistant Surgeon Lasher Hart, resignation accepted by the President to take effect July 7, 1909.

Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the the week ended July 9, 1909:

SMALLPOX—UNITED STATES

Georgia: Macon, June 20-27, 2 cases.
Illinois: Chicago, June 19-26, 2 cases; Danville, June 20-27, 3 cases.
Indiana: Indianapolis, June 13-20, 1 case; Muncie, June 19-26, 1 case; South Bend, 2 cases.
Kansas: Kansas City, June 19-26, 5 cases.
Kentucky: Covington, June 19-26, 2 cases; Lexington, 5 cases; Paducah, 2 cases.
Louisiana: New Orleans, June 19-26, 1 case.
Michigan: Grand Rapids, June 19-26, 1 case.
Minnesota: Duluth, June 18-25, 2 cases.
Missouri: Kansas City, June 19-26, 1 case; St. Joseph, May 29-June 5, 3 cases, June 7-14, 1 case.
Montana: Butte, June 18-24, 2 cases.
Tennessee: Knoxville, June 19-26, 4 cases.
Texas: Galveston, June 18-25, 1 case.
Virginia: Lynchburg, June 19-26, 1 case, imported.
Washington: Spokane, June 12-19, 3 cases; Tacoma, June 13-20, 2 cases.

SMALLPOX—INSULAR

Philippine Islands: Manila, May 8-22, 9 cases, 2 deaths.
Canada: Halifax, June 12-19, 2 cases.
Chile: Santiago, June 7, present.
China: Amoy, May 1-15, present; Hankau, May 1-8, present; Shanghai, May 8-15, 1 death; Tientsin, April 24-May 1, 1 case.
Egypt: Cairo, May 21-27, 2 cases, 1 death.
France: Paris, June 5-12, 5 cases.
India: Bombay, May 25-June 1, 15 deaths; Madras, May 22-28, 1 death; Rangoon, May 15-22, 4 deaths.
Italy: June 6-13, 8 cases; Naples, 25 cases, 4 deaths.
Japan: Yokohama, June 1-7, 1 case.
Java: Batavia, May 8-22, 4 cases.
Mexico: Veracruz, June 15, 1 case.
Portugal: Lisbon, June 5-19, 9 cases.
Russia: Moscow, May 29-June 5, 29 cases, 13 deaths; Odessa, June 5-12, 4 cases; Riga, 7 cases; St. Petersburg, May 22-29, 19 cases, 3 deaths.
Switzerland: Geneva, May 29-June 5, 10 cases.
Turkey: Constantinople, May 30-June 6, 4 deaths.

YELLOW FEVER

Barbados: St. Joseph parish, June 5-20, 3 cases.
Brazil: Manaos, May 22-29, 2 deaths; Para, May 29-June 12, 5 deaths.
Ecuador: Guayaquil, May 22-29, 7 deaths.

CHOLERA—INSULAR

Philippine Islands: Provinces, May 8-22, 49 cases, 32 deaths.

CHOLERA—FOREIGN

India: Bombay, May 25-June 1, 3 deaths; Rangoon, May 15-22, 1 case.
Russia: St. Petersburg, June 14-17, 106 cases, 24 deaths.
Straits Settlements: Singapore, May 8-15, 6 deaths.

PLAGUE

Chile: Antofagasta, May 29, 5 cases in the lazaretto; Iquique, May 30, 10 cases in the lazaretto.
China: Amoy, May 1-22, present; Chinchow, May 22, epidemic.
Ecuador: Guayaquil, May 22-29, 3 deaths.
Egypt: May 28-June 3, 19 cases, 18 deaths; Alexandria, May 29-June 5, 1 case; Port Said, June 9, 1 case.
India: General, May 15-29, 6,920 cases, 6,033 deaths; Bombay, May 25-June 1, 125 deaths; Rangoon, May 15-22, 6 deaths.
Japan: Kobe, May 28-June 5, 3 cases, 1 death; Yokohama, June 1-7, 5 cases, 4 deaths.
Peru: May 22-June 5, 13 cases, 7 deaths; Callao, 1 case, 1 death.
Venezuela: Caracas, to June 13, 10 cases, 4 deaths; June 14-21, 3 cases, 1 death.

Book Notices

A SYSTEM OF SYPHILIS. In six volumes. Edited by D'Arcy Power, M.B., F.R.C.S., and J. Keogh Murphy, M.D., M.C., F.R.C.S. With an introduction by Jonathan Hutchinson, F.R.S. Vol. I. Cloth. Pp. 380, with illustrations. Price, $13.50. New York: Oxford University Press, 1908.

The volume before us is the first of a six-volume system devoted to the subject of syphilis. It is a large octavo of over 400 pages, so that the entire work will contain approximately 2,500 pages. The appearance of such a system is in itself noteworthy and represents an undertaking which on the face of it is commendable. It means, first, that there is behind it an understanding of the extent, as well as of the importance, of the subject of syphilis and, second, that there is a spirit in the enterprise that does not hesitate at a great undertaking. The work bids fair, judging from this volume and the list of contributions to future volumes, to be a monument to scientific enthusiasm and British scholarship. It is distinctly a British work; except Metchnikoff and Iwan Bloch, all of the contributors belong to the English school. The work is appearing at an opportune time, for there is no longer room to doubt that the discovery by Metchnikoff and Roux of the inoculability of apes and monkeys with syphilis, the more recent discovery by Schaudinn and Hoffmann of the *Spirochæta pallida* in syphilis, and the application by Wassermann and others of the serum complement reaction in the diagnosis of syphilis mark the greatest epoch in our knowledge of syphilis since its sudden appearance in Europe in the last years of the fifteenth century. These events, indeed, almost mark an epoch in the history of medicine.

Most appropriately for a British work, the system begins with an introduction by Jonathan Hutchinson, the greatest syphilographer and one of the greatest clinicians that Great Britain has produced, a very Sydenham of an observer and a figure that, with Fournier, stands out above all the students of syphilis of the latter half of the nineteenth century. Hutchinson's introduction, like most of his recent writings, consists of disjointed paragraphs on various topics in syphilis; they are frankly intended to be, not systematic or complete, but suggestive. They constitute a highly interesting presentation of many problems of syphilis as they occur to a thoughtful and original mind that has given a large part of a long lifetime of study to syphilis. His introduction is extremely suggestive and is worthy any one's study.

In addition to Hutchinson's introduction the following subjects are considered in Volume I: "History of Syphilis," by Iwan Bloch, Berlin; "Microbiology of Syphilis," by Elie Metchnikoff, of the Pasteur Institute, Paris; "General Pathology," by F. W. Andrewes, Pathologist to St. Bartholomew's Hospital, London; "Primary Lesions and Early Secondary Symptoms," as seen in the male, by Colonel F. J. Lambkin of the British Army; the same lesions, as seen in the female, by Arthur Schillitoe, of the London Lock Hospital; "Congenital Syphilis," by G. F. Still, Professor of Diseases of Children, King's College, London.

Bloch's larger work in German on the history of syphilis proves his fitness for this topic. He gives to the subject four short chapters of 40 pages, and he has written as would be expected of him. The history of syphilis with its sudden appearance in Europe, its devastating spread, and the enigma of its origin is one of the most dramatic subjects in medicine, and Bloch treats it well. He believes, and in our opinion leaves little room for doubt, that it came from America. He emphasizes the findings of Spanish authorities that the disease can be traced back in authentic documents directly to sailors from Columbus' fleet who were treated by Spanish physicians and whose disease was recognized and recorded as new.

The chapters on the microbiology of syphilis by Metchnikoff are eminently satisfactory. He covers the field so well that his work may be considered practically up to date, even in the present stage of rapid development of this subject. In a short historical survey he reviews the work in this field by various observers prior to Schaudinn and Hoffmann's discovery. Of Siegel's *Cytorrhyctes luis*, which is still maintained as the cause of syphilis by its fond discoverer—and by no one else, as far as we know—he says: "The description and

photographs . . . showed nothing which could in the slightest degree carry conviction. . . . ." Then, before taking up Schaudinn's discovery, he describes how, from the resemblance of syphilis to dourine of horses, which is due to a spirillum, and because of the spirilla found in syphilis by Bordet and Gengou, he and Roux made a bacteriologic study of syphilis with the definite hope of finding a pathogenic spirillum, and after a fruitless search, "expressed the opinion that the disease could not be attributed to any form of spirillum"—this in the *Annales de l'Institut. Pasteur* in 1904 on the very eve of the discovery of the spirillum of syphilis. As to the rôle of the *Spirochæta pallida* in syphilis, he says: "We can say, speaking generally, that this organism can be shown in every possible lesion which is definitely syphilitic."

Andrewes' chapters on the pathology of syphilis do not suffer even by following Metchnikoff's. He divides his subject into three parts: the general pathology of syphilis; the general histology of syphilis; and the problems of immunity in syphilis. His plan of treating the subject is to give a running account of the clinical or experimental facts which he is at the moment considering and to follow this by the pathologic explanations. This treatment of the subject is, of course, scientific, and it adds much to the interest. The result is a particularly happy and philosophical exposition of the pathology of syphilis.

The chapters on the symptoms of the primary and secondary periods of syphilis are complete, but they are not particularly noteworthy. In the first place, the division of the subject into the symptomatology in the male and the symptomatology in the female is unnatural and is not justified by practical distinctions in the manifestations of the disease in the two sexes; further, it results in unavoidable repetition. In the chapters on the symptoms in the male there are several curious lapses in the Latin of the prescriptions. But, after all this is said, these chapters may be profitably consulted for facts on almost any point in syphilis of which they might be expected to treat.

The chapters by Still give a thoughtful, detailed, analytical account of congenital syphilis. Over eighty pages are given to the subject and they constitute a good monograph, whose value is increased from the fact that the disease is considered from the standpoint of the internist. The account of the cutaneous symptoms in congenital syphilis is sketchy and shows the lack of expert knowledge of dermatology.

The book-making has some unusual features. The paper is unglazed, and the type is large, so that reading is made unusually easy. Although, on account of the thickness of the paper, the volume is rather large, it is of light weight, so that that usual abomination of large volumes—difficulty of holding with ease while reading—is avoided. The illustrations are all printed on inserts. The clinical illustrations, which are with few exceptions colored, are mounted on heavy gray sheets, and this method of presenting them adds very much to their attractiveness. Altogether, they constitute a good atlas of the clinical manifestations of primary and secondary syphilis and of congenital syphilis. The microscopic illustrations, most of them in black and white, some of them colored, are beautifully reproduced. No expense or pains has been spared to make them as perfect as possible.

Altogether, the volume comes up to the high standard that is to be expected of it, and the system promises to be a noteworthy encyclopedia of syphilis.

MENDEL'S PRINCIPLES OF HEREDITY. By W. Bateson, M.A., F.R.S., V.M.H., Fellow of St. John's College. Cloth. Pp. 396, with illustrations. Price, $3.50. Cambridge: The University Press, 1909.

Bateson is the occupant of a newly founded chair in the University of Cambridge, founded and endowed for five years with the purpose of special study and inquiry into heredity and variations, or genetics, the more modern term.

This book, which is clearly written and well illustrated, aims to give a succinct account of the discoveries and developments in the field of heredity resulting from the application of Mendel's now well-known methods of research. In the first part Bateson deals with introductory matters and with Mendel's discovery; he then discusses the material investigated by himself and his associates and the numerical consequences and recombinations. Several chapters are devoted to heredity of color, heredity and sex, and double flowers. Chapter XII is devoted to a discussion of the evidences of Mendelian inheritance in man; and various examples of hereditary diseases and malformations are cited and illustrated with diagrams of heredity. The next four chapters deal with intermediates between varieties and "pure lines," miscellaneous, exceptional and unconformable phenomena, biologic conceptions in the light of Mendel's discoveries, and practical applications of Mendel's principles.

The second part contains an interesting biographical notice of Mendel and translations of epochal papers on hybridization and on *Hieracium*. There are also two portraits of Mendel. The book may be strongly recommended to physicians and to medical teachers who are interested in following the developments of the new science of genetics.

A full bibliography is given and there is a separate index to subjects and authors.

THE INFLUENCE OF HEREDITY ON DISEASE, with Special Reference to Tuberculosis, Cancer and Diseases of the Nervous System. A Discussion opened by Sir William S. Church, Bt. K.C.B., M.D., President of the Royal Society of Medicine, Sir William R. Gowers, M.D., F.R.S., Arthur Latham, M.D., and E. F. Bashford, M.D. [From the Proceedings of the Royal Society of Medicine, 1909, Vol. II.] Cloth. Pp. 142, with illustrations. Price, $1.50. New York: Longmans, Green & Co., 1909.

This discussion is the first held by the Royal Society of Medicine in accordance with its intention to hold from time to time, in addition to the meetings of its sections, meetings of the society as a whole to discuss questions of general medical interest. In view of the importance of determining exactly, if possible, the influence of heredity as an etiologic factor in disease, it was thought proper to publish as a separate volume the discussion of this subject at four different meetings in the latter part of 1908. While the discussion does not settle the question, yet the Royal Society may well be congratulated on the outcome of the attempt, because the discussion as presented in the volume before us unquestionably is the most weighty contribution to the great problem of heredity and disease since the introduction of the modern methods of study of inheritance in general.

The most valuable concrete results of the discussion would seem to be (1) the conclusion that true heredity plays little or no part in causing tuberculosis and cancer, and that from the evidence in hand no really trustworthy conclusions may be drawn as to the influence of heredity on insanity and functional nervous disorders, and (2) the forcible demonstration of the urgent necessity of the collection of complete pedigrees of human beings with special reference to disease. Even in the case of clearly inheritable diseases there are very few good pedigrees for the study of the applicability of Mendelian and other laws of heredity; and practically all the statistics accumulated on insanity are valueless for any practical or scientific purpose, representing in so far a gigantic waste of time and labor, because they do not give numerical records of the sane members of the families of the insane and of the insane members of the families of the sane. Lack of completeness vitiates most of the statistics bearing on heredity in relation to human diseases.

Heredity from the standpoint of Mendelism is well represented by Professor Bateson and Mr. Mudge; while Professor Pearson upholds ably the value of the biometric method in the study of heredity. The introduction of the president, Sir William E. Church, is eloquent and illuminating, and throughout the discussion clearness and ability are noteworthy. All who are at all interested in heredity and disease are urgently recommended to study this noteworthy discussion. This book and Bateson's on "Mendel's Principle on Heredity" should lead to great increase in the interest among medical men in the accurate study of heredity.

DIE BEHANDLUNG DER GEBURTEN BEI ENGEN BECKEN. Von Dr. E. Scipiades, Assistenten der zweiten Frauenklinik der konigl. ung. Universität in Budapest. Paper. Pp. 246. Price, 7 marks. Berlin: S. Karger, 1909.

This monograph is a translation from a Hungarian work published by Scipiades in 1906. Scipiades discusses in detail the advantages, disadvantages and indications for the various methods in the treatment of contracted pelvis and gives especial attention to the methods of pubiotomy.

COMMON DISORDERS AND DISEASES OF CHILDHOOD. By George Frederick Still, M.A., M.D., F.R.C.P., Professor of Diseases of Children, King's College, London. Cloth. Pp. 731, with illustrations. Price, $5.50. New York: Oxford University Press, 1909.

This modest little book of 700 pages comes to us as another of those refreshing and most admirable works that represent the mature ideas and interests of one of the great English pediatricians. In many ways it reminds one of that other excellent little treatise by the great Edinburgh clinician, Thompson ("The Examination and Treatment of Sick Children"), which was recently reviewed in these columns. Yet each has its individuality so strongly marked that one reads them both as one would go to two clinics on the same subject by two different authorities. Dr. Still emphasizes the fact that he has not written a text-book, but has been "selective and discursive" as "suited his bent." This gives the book a more direct personal appeal to the reader that adds much to its worth. It would be hard indeed to find anywhere another book that is so prolific in answers to the innumerable questions that come to us in our daily observation of children. There are, for example, 7 most comprehensive pages on "Disorders of Dentition," 8 on "Dental Caries," 3 on "Teeth-Grinding," 6 on "Head-Rolling, Head-Banging and Body-Rocking," 11 on "Head-Nodding with Nystagmus in Infancy," 11 on "Mongolian Idiocy," and 24 very practical pages on "Fever of Obscure Origin," in which Dr. Still gives a deserved prominence to acute primary pyelitis. One misses the profusion of peculiarly illustrative pictures in Thompson's book, but the smaller number here are well chosen. Dr. Still's ideas on infant-feeding fundamentally are those of the English school, and yet he brings so much individuality and originality to the subject that one reads it with renewed interest. On the whole, this little book can not be too highly commended to any one interested in infants and children, and any physician, especially one who has been in practice for a number of years and has collected a large number of questions to which he would like to find satisfactory answers, will find here a veritable mine of information.

ORTHOPEDIC SURGERY FOR PRACTITIONERS. By Henry Ling Taylor, M.D., Professor of Orthopedic Surgery and Attending Orthopedic Surgeon, New York Post-Graduate Medical School and Hospital. Assisted by Charles Ogilvy, M.D., Adjunct Professor of Orthopedic Surgery New York Post-Graduate Medical School and Hospital, and Fred H. Albee, M.D., Instructor in Orthopedic Surgery, New York Post-Graduate Medical School and Hospital. Cloth. Pp. 503, with illustrations. Price, $5.00. New York: D. Appleton & Co., 1909.

The book is dedicated to Dr. Charles Fayette Taylor, the father of the author, and one of the pioneers in this country in orthopedic surgery. It is divided into general, special and technical parts, and an effort has been made to present such methods as are at the command of any intelligent practitioner, and to eliminate irrelevant and useless matter. The result is the most readable book that has so far been written on orthopedic surgery. For the student and for the busy practitioner the division of the work into three parts may be confusing and unsatisfactory. A student more readily masters a subject when all that is to be said about it can be found in one place, and the practitioner who wishes to arrive at a differential diagnosis in an obscure case, and to learn at once how best to treat the patient may become impatient when he has to follow his subject through three separate and distinct divisions of the book. There have appeared in English only two books on orthopedic surgery that may be considered in a class with this, namely, that of Bradford and Lovett, and that of Whitman. This book is more concise and contains much less irrelevant matter than the former, and does not constantly repeat itself as does the latter.

Throughout the book Dr. Taylor makes use of the term "ichor pockets" as a technical term to replace the term "tuberculous abscesses," or "cold abscesses," holding that abscess suggests pus, and that the term "tuberculous pus" is not only inaccurate but misleading, since the liquid contents of tuberculous abscesses are in no way pus at all in the sense of modern pathology, and since the use of any term suggesting that this liquid is a form of pus often leads to surgical procedures that are right enough when true pus is present, but absolutely wrong if it is only "ichor" or tuberculous pus. We hope the use of these words in the technical sense will obtain.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: San Francisco, August 3. Sec., Dr. Charles L. Tisdale, Butler Bldg.
GEORGIA: Regular, Capitol Bldg., Atlanta, August 3-4. Sec., Dr. E. R. Anthony, Griffin.
ILLINOIS: Coliseum Annex, Chicago, July 20-22. Sec., Dr. J. A. Egan, Springfield.
NEBRASKA: State Capitol, Lincoln, August 4-5. Dr. A. L. Muirhead, 4248 Burdette St., Omaha.

Arkansas January and April Reports

Dr. F. T. Murphy, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examinations held at Little Rock, Jan. 12 and April 13, 1909. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75.

At the examination held in January, the total number of candidates examined was 60, of whom 21 passed, including 11 non-graduates, and 39 failed, including 37 non-graduates. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Illinois Medical College	(1906)	80.
Hospital College of Med., Louisville	(1895) 80.5; (1908)	81.2
Tulane University of Louisiana	(1903)	79.4
University Medical College, Kansas City	(1908)	77.
Vanderbilt University	(1892) 78.7; (1908)	87.2
University of Tennessee	(1891)	75.
University of Nashville	(1908)	85.8
University of the South	(1908)	88.1
FAILED		
University of Georgia	(1908)	65.
Meharry Medical College	(1908)	57.1

LICENSED WITHOUT EXAMINATION

There were also licensed at this examination seven old practitioners including one non-graduate, who were granted license by reason of having been registered under the old law. The following colleges were represented:

College	Year of Grad.
University of Arkansas	(1891)
Barnes Medical College	(1899)
Bellevue Hospital Medical College	(1885)
Memphis Hospital Medical College	(1903)
Meharry Medical College	(1882)
University of Tennessee	(1872)

At the examination held in April, the total number of candidates examined was 68, of whom 34 passed, including 22 non-graduates, and 34 failed, including 25 non-graduates.

PASSED College	Year Grad.	Per Cent.
University of Arkansas	(1908)	76.8
Howard University	(1906)	82.1
Hospital College of Medicine, Louisville	(1901)	88.1
Tulane University of Louisiana	(1901)	77.4
Flint Medical College	(1904)	75.
Missouri Medical College	(1888)	75.
Vanderbilt University	(1901)	84.4
Memphis Hospital Medical College	(1899) 83.; (1908)	79.8
University of the South	(1908)	82.8
Fort Worth University	(1883)	76.2
Meharry Medical College	(1909)	82.5
FAILED		
University of Georgia	(1908)	62.
Kentucky School of Medicine	(1902)	64.1
University of West Tennessee	(1907)	41.

Meharry Medical College, (1899) 65.1; (1907) 38.; (1908) 64, 65.4, 73.2; (1909) 55.7.

LICENSED WITHOUT EXAMINATION

There were also licensed at this examination five old practitioners, including two non-graduates, who were granted license by reason of having been registered under the old law. The following colleges were representd:

College	Year of Grad.
University of Arkansas	(1888)
University of Iowa	(1887)
St. Louis College of Physicians and Surgeons	(1889)

Nebraska May Report

Dr. E. J. C. Sward, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, May 25-27, 1909. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 6, of

whom 3 passed and 3 failed. Twenty-six reciprocal licenses were issued. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Central Medical College, St. Joseph	(1900)	90.
Creighton Medical College	(1908)	83.5
Jefferson Medical College	(1902)	76.5
FAILED		
Sioux City College of Medicine	(1908)	62.1
Creighton Medical College	(1908)	71.
Nebraska College of Medicine	(1908)	64.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
American Medical Missionary College	(1901)	Illinois
National Medical University	(1905)	Illinois
Bennett College of Eclectic Medicine and Surgery, (1900) Wyoming.	(1897)	Wisconsin
Rush Medical College	(1894)	Iowa
Northwestern University Medical School	(1908	Illinois
University of Iowa	(1884), (1904),	(1908) Iowa
Keokuk Medical College, Col. of Phys. and Surgs.,	(1902)	Illinois
University of Kansas	(1907)	Kansas
University of Maryland	(1891)	Iowa
Johns Hopkins Medical School	(1900)	U. S. Army
University of Maryland	(1902)	Maryland
Central Medical College, St. Joseph	(1903)	Missouri
Barnes Medical College	(1899)	Missouri
Washington University, St. Louis	(1906)	Illinois
Ensworth Medical College, St. Joseph, (1886) Ia.;	(1907)	Kansas
Missouri Medical College	(1895)	Missouri
Creighton Medical College	(1908)	Illinois
Cleveland College of Physicians and Surgeons	(1896)	Ohio
Eclectic Medical Institute, Cincinnati	(1906)	Illinois
Miami Medical College	(1875)	Iowa
University of Virginia	(1878)	U. S. Army
Milwaukee Medical College	(1897)	Wisconsin

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Business Partnerships in the Medical Profession

In a recent number of the *Boston Medical and Surgical Journal*, Dr. G. C. Shattuck of Boston, in some interesting "Random Medical Notes of Travel," makes reference to the practice, common in China among physicians, of associating themselves in partnership—usually one physician, one surgeon, and one or more specialists. In Shanghai and Hong Kong, practically all English physicians are thus associated. In an association of four, each would thus be given the opportunity once in four years of going on vacation, and at the same time of strengthening his professional weak points and gaining new ideas. The others divide the work of the absentee so that his practice is not lost and he receives his share of the profits from the firm.

The fees charged in Shanghai are so much a year for every member of a family without regard to the number of calls made. The only extra charges are for operations. The patient may choose any physician he wants, and having chosen, may call the other members of the firm either in consultation or when his own medical attendant is away. The physician is responsible for his patients under all circumstances. It does not matter what may be needed or what difficult operation may be required, he must perform it to the best of his ability himself.

From the patient's point of view the system is a success because a medical man can be found at any time, and because in case of sickness doctor's bills do not increase. The physicians like it because they get an assured income, and because it enables them to take vacations without losing their practice. Very good all-round men are developed by this system, but it must sometimes happen that a physician is called on to do work for which he is not fitted. This difficulty is obviated to some extent by the fact that most Shanghai people go to England every few years, and while there have their eyes examined and can have operations performed if necessary.

In Hong Kong, as in Shanghai, the profits of physicians' firms are divided, but fees are charged for every visit instead of for the year's attendance, and an attempt is made to divide the different kinds of practice among the members of a firm, instead of insisting that every man shall do everything. Specialism had not appeared in Shanghai at all when Shattuck was there, but he thinks it is beginning to come in outside the firms at Hong Kong. However well the firm system may work in small communities, he thinks that if the foreign cities continue to grow, it must break down or limit its scope before long in China. In that case the general practitioners would be able to make a living without undertaking everything, and they would probably part willingly with some of the responsibilities which rest on them under the old system. Shattuck thinks that in a city where there are already nine or ten recognized specialists, and where medicine and surgery are being still further subdivided, the practical difficulties of managing a firm to undertake all kinds of practice would be prohibitive.

Proposed International System of Postgraduate Courses

The German system of a central organization of free postgraduate courses of lectures and exhibitions throughout the country has been in operation for about six years. It has its own central building, the Empress Friedrich House at Berlin, and it publishes a monthly organ, edited by R. Kutner, the *Zeitschrift für aerztliche Fortbildung*. Waldyer and Kutner have been appointed delegates from the committee in charge to attend the approaching international medical congress at Budapest and interest the profession in forming an international organization for postgraduate medical work along the same lines as this national organization.

A long anonymous communication in the *Münchener medizinische Wochenschrift*, April 20, denounces the entire system of these free courses, as the lecturers charge nothing for the lectures—directly—but, the writer says, they expect to profit from them indirectly in the long run. The recent tipping scandal written up in our Berlin Letters is cited as an indication of the way in which the profession is drifting on the rocks, and it is demanded that this free postgraduate system of instruction be abandoned. One of the reasons for the demand is the principle taught by the *Leipziger Verband* that the medical laborer is worthy of his hire and is entitled to payment for every medical service. Another reason given is that the free postgraduate courses cut into the receipts of the pay courses offered by privat docents, whose meager salaries need this aid.

To this communication Kutner responds with great indignation in his *Zeitschrift*, denouncing, among other things, the mentioning in the same breath of the tipping scandal and the unselfish devotion of the many eminent men who have participated in the organized postgraduate courses throughout the country from the highest altruistic motives.

Marriages

KARL A. DANELL, M.D., to Miss Mathilda Z. Eliason, both of Chicago, June 24.

FRANK NEE, M.D., to Miss Elizabeth King, both of Spring Green, Wis., June 22.

CECIL GARRENTON, M.D., to Miss Isabel N. Dunn, both of Philadelphia, June 30.

EMANUEL FRIEDMAN, M.D., Denver, to Miss Rebecca Schugar of Pittsburg, Pa., July 4.

JOHN B. EGAN, M.D., Excelsior, Wis., to Miss Margaret Meier of Fennimore, Wis., June 15.

FELIX VILELLA, M.D., Porto Rico, to Miss Rita Boswell, at Ellicott City, Md., January 23.

J. ELMER SAALMAN, M.D., Indianapolis, to Miss Elsie C. Staup of Freeport, Pa., June 14.

CHARLES E. SCULLIN, M.D., Peoria, Ill., to Miss Grace Barracks, at Franklin, Ind., June 22.

JOHN ROBERT ABERCOMBIE, M.D., to ANNA DEBRING SCHULTZE, M.D., both of Baltimore, June 30.

ALGERNON R. FIKE, M.D., Spartanburg, S. C., to Miss Rose Wingo of Asheville, N. C., June 30.

CHESTER L. JONES, M.D., Philadelphia, to Miss Caroline F. Schock of Mount Joy, Pa., July 1.

MICHAEL F. BURKE, M.D., Natick, Mass., to Miss Alice B. Madden of Haverhill, Mass., June 29.

JOHN FRANCIS FORD, M.D., to Miss Marguerite A. McKenna, both of Roslindale, Boston, recently.

JOSEPH V. GRAHEK, M.D., Calumet, Mich., to Miss Alice Belhumer of Champion, Mich., June 22.

ALFRED HENRY NOEHREN, M.D., Buffalo, N. Y., to Miss Juliet Egelhoff of Milwaukee, Wis., June 22.

WALTER C. GILDAY, M.D., New York City, to Miss Lillian Randolph Bailey of Baltimore, June 30.

LEONARD DAVIS FRESCOLN, M.D., Philadelphia, to Miss Ethel May Cordes of Millington, N. J., June 30.

CHARLES W. POLLARD, M.D., Omaha, to Miss Helen R. Cole of Peru, Neb., at Des Moines, Iowa, June 26.

HARRY L. GILCHRIST, M.D., U. S. Army, to Miss Mayme L. Morganthaler of Cleveland, Ohio, June 30.

MARION S. JORDAN, M.D., Grand Mound, Iowa, to Miss Charlotte E. Clarke of Maquoketa, Iowa, June 16.

ROBERT HANCE CASPERSON, M.D., Camden, N. J., to Miss Susan May Naudain, at New York City, June 30.

FRANCIS E. LISTER, M.D., Brookston, Ind., to Mrs. Gertrude B. Delzell of Chicago, at Morgan Park, Ill., June 22.

THOMAS FRANKLIN DODD, M.D., Stuart's Draft, Va., to Miss Katharine Louise Smith, at Alexandria, Va., June 30.

LEWIS HENRY MARKS, M.D., Poughkeepsie, N. Y., to Miss Maud Willis Lawrence, at Tusculum, Tenn., June 30.

ROBERT ELLIOTT GRAVES, M.D., Chicago, to Miss Angeline Loesch of Chicago, at her summer home, Spring Lake, Mich., June 30.

Deaths

Lewis Sloat Paddock, M.D. New York Medical College, New York City, 1854; for more than fifty years a practitioner of Norwich, Conn.; a member of the Connecticut State Medical Society; and for many years a member of the American Medical Association; once president of New London County Medical Society; consulting physician to the Baccus Hospital, Norwich, since its foundation; for many years medical examiner of New London county; died at the Baccus Hospital, June 24, from disease of the bladder, aged 79.

William Josiah Fairfield, M.D. Bellevue Hospital Medical College, New York City, 1878; formerly of Anderson, Ind.; secretary of the Anderson Board of Health; and surgeon to the Chicago and Southeastern Railroad; a member of the American Medical Association, American Academy of Railway Surgeons and American Public Health Association; who moved to Delta, Colo., in 1908; was drowned in the Gunnison river, at his ranch near Delta, while swimming, June 27, aged 56.

William H. Whitehead, M.D. University of Maryland, Baltimore, 1870; of Rocky Mount, N. C.; a member and once president of the Medical Society of the State of North Carolina; a member of the board of directors of the Central Hospital, Raleigh; once a member of the State Board of Medical Examiners, and for several years division surgeon for the Atlantic Coast Line Railway; died in Raleigh, June 24, from paresis, aged 57.

Edwin Howard Vose, M.D. Medical School of Maine, Brunswick, 1864; formerly a member of the Maine Medical Association and New Brunswick Medical Society; acting assistant surgeon in the Navy during the Civil War; a member of the Calais, Maine, U. S. Pension Examining Board from 1873 to 1908; and city physician in 1872 and from 1876 to 1892; died at his home in Calais, June 27, aged 74.

Hugh R. C. Manning, M.D. Louisville (Ky.) Medical College, 1898; Hospital College of Medicine, Louisville, 1899; a member of the American Medical Association and Louisville Academy of Medicine; formerly assistant professor of theory and practice of medicine in the Hospital College of Medicine and chief of clinic; died at the family home in Manchester, Ky., July 1, from nephritis, aged 35.

Frank Huron Wallace, M.D. Dartmouth Medical School, Hanover, N. H., 1886; of Boston, Mass.; a member of the American Medical Association; formerly lecturer on materia medica and therapeutics in the College of Physicians and Surgeons, Boston; died June 27, in the Massachusetts Eye and Ear Infirmary, Boston, from acute nephritis, while awaiting operation, aged 49.

Charles Duff Jackson, M.D. Western Pennsylvania Medical College, Pittsburg, 1904; of Denver, Colo.; a member of the Colorado State Medical Society; died in Mercy Hospital, Denver, June 28, from injuries received in a collision between his motorcycle and an electric car, in which he sustained a fracture of the shoulder and concussion of the brain, aged 30.

John Woolf Burton, M.D. University of Maryland, Baltimore, 1865; Washington University, Baltimore, 1872; for many years a member of the Medical Society of the State of North Carolina; committed suicide at his home in High Point, June 30, by hanging himself in his stable, while mentally irresponsible from ill health and despondency, aged 65.

James Madison Kelley, M.D. Bellevue Hospital Medical College, New York City, 1878; a member of the Medical Association of Georgia; physician and surgeon to the Griffin (Ga.) Hospital; major and surgeon Second Infantry N. G. Ga.; for several years a member of the city council; died at his home in Griffin June 29, from paralysis, aged 55.

Thomas B. Campbell, M.D. Bellevue Hospital Medical College, New York City, 1871; a member of the Indiana State Medical Association and president of the Fountain-Warren Medical Society; for forty-five years a practitioner of Indiana; died at his home in West Lebanon, May 30, from lobar pneumonia, aged 66.

Charles Forester Millar, M.D. University of California, San Francisco, 1899; of San Francisco; member of the American Medical Association; chief of the Emergency Hospital service after the earthquake and fire in 1906; at one time a member of the surgical staff of the Southern Pacific Railroad; died at a hospital in Seattle, Wash., June 22, from tuberculosis.

Nicholas F. Howard, M.D. Medical College of Georgia, Augusta, 1851; surgeon of the Fifty-second Georgia Infantry, C. S. A., during the Civil War; a representative of the legislature from Lumpkin county in 1856; and for several years vice-president of the North Georgia College; died at his home in Dahlonega, Ga., June 23, aged 87.

Edward Zina Cole, M.D. Hahnemann Medical College, Chicago, 1879; founder and president of St. Luke's Hospital, and professor of gynecology in the Atlantic Medical College, Baltimore; died at his home in that city, June 29, from heart disease following heat prostration in Detroit, four days before, aged 55.

James Russell Curnow, M.D. Bellevue Hospital Medical College, New York City, 1882; for many years a member of the Medical Society of the State of California; a specialist on nervous and mental diseases, of San Jose, Cal.; died in the State Hospital for the Insane, Agnews, June 29, aged 56.

Aaron G. Chase, M.D. Cincinnati, 1859; for forty-two years a practitioner of Easton, Kan.; a surgeon in the volunteer service during the Civil War; and for several years editor of the *Kansas Farmer*, died at his home in Easton, Dec. 31, 1908, from heart disease, aged 69.

Sebern J. Layman (license, Ill., years of practice, 1878); assistant surgeon of the Eighteenth Illinois Volunteer Infantry during the Civil War; local surgeon at Tamoroa for the Illinois Central Railroad for many years; died at his home, June 27, aged 72.

Frederick Charles Robinson, M.D. New York University, New York City, 1876; a member of the American Medical Association; and a veteran of the Civil War; for two years a trustee of the public schools; died at his home in New York City, July 4, aged 63.

Robert James Hess, M.D. University of Pennsylvania, Philadelphia, 1871; a member of the American Medical Association; from 1874-1880 a member of the staff of the State Insane Hospital, Harrisburg; died at his home in Philadelphia, June 20, from pneumonia, aged 63.

John W. Whidden, M.D. Hahnemann Medical College, Chicago, 1879; of Portland, Maine; formerly president of the Maine State Homeopathic Society; died at Highland Lake, Maine, June 29, from cerebral hemorrhage, aged 53.

Henry Watrous Post, M.D. University of Vermont, Burlington, 1876; died at his home in New York City, June 25, from the effects of a self-inflicted gunshot wound of the head, while irresponsible on account of heat prostration, aged 54.

John Dooley, M.D. Physio-Eclectic Medical College, Cincinnati, 1876; American Eclectic Medical College, Cincinnati, 1890; at one time surgeon in the Kansas National Guard; died at his home in St. Louis, June 12, aged 77.

Raphael Asselta, M.D. University of Naples, Italy, 1884; said to have been the first Italian practitioner in New York City; died in New York Hospital, July 6, while undergoing operation for disease of the throat, aged 52.

Amanda Jane Evans, M.D. University of Michigan, Homeopathic College, Ann Arbor, 1880; for more than twenty years a practitioner of Grand Rapids, Mich.; died at the home of her daughter in that city, July 2, aged 65.

James Augustus Bennett, M.D. New York University, New York City, 1860; surgeon of the Thirteenth Volunteer Heavy Artillery during the Civil War; died at his home in Prattsburg, N. Y., January 14, aged 77.

Ezekiel Lawson, M.D. University of Pennsylvania, Philadelphia, 1853; surgeon of the Third Delaware Volunteer Infantry during the Civil War; died at his home in Baltimore, June 27, from senile debility, aged 78.

Daniel Royer Good, M.D. Jefferson Medical College, Philadelphia, 1858; a surgeon in the Federal service during the Civil War; died at his home in Osceola Mills, Pa., June 26, from senile debility, aged 80.

Harry C. Stickney, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1868; of Los Angeles, Cal.; died in the Los Angeles County Hospital, Oct. 24, 1908, from paralysis agitans, aged 64.

George R. Thomas, M.D. Memphis (Tenn.) Hospital Medical College, 1886; a member of the Tennessee State Medical Association; died at his home at Jones' Station, June 25, from dysentery.

John Evans Tuttle, M.D. Rush Medical College, Chicago, 1868; formerly a practitioner of Myersville, Ill.; died at his home in Danville, Ill., Nov. 20, 1908, from angina pectoris, aged 68.

Robert Henry Davis, M.D., surgeon in the Confederate service during the Civil War; died at the home of his daughter in Brooklyn, N. Y., Dec. 15, 1908, from lobar pneumonia, aged 81.

Richard Benbury Creecy Lamb, M.D. University of Maryland, Baltimore, 1904; of Yslita, Texas; died in Providence Hospital, El Paso, Texas, June 22, from typhoid fever, aged 26.

Matthias Gau (license, exemption certificate, Minn., 1883); formerly of Freeport, Minn.; for forty-five years a practitioner of that state; died in November last in California.

Andrew G. Grubbs (license, Allegheny county, Pa., 1891); of McKeesport, Pa.; died suddenly in a hospital in Pittsburg, January 3, from cerebral hemorrhage, aged 79.

James L. White, M.D. Jefferson Medical College, Philadelphia, 1855; a member of the Medical Society of Virginia; died at his home in Farmville, Va., June 26, aged 75.

James Griffin Coleman, M.D. Western Reserve University, Cleveland, 1847; died at his home in Chagrin Falls, Ohio, May 31, from senile debility, aged 90.

L. H. Ingraham (license, Ark., 1903); for many years a practitioner of Lavaca and Fort Smith; died at his home near the latter city, June 22, aged 64.

Seneca D. F. Gurney, M.D. Memphis (Tenn.) Medical College, 1854; was shot and killed by his insane son, at his home in Quincy, Ill., June 27, aged 79.

Erastus Coffin, M.D. American Eclectic Medical College, Cincinnati, 1890; died suddenly from heart disease at his home in Cincinnati, June 26, aged 68.

Arza O. Osborn, M.D. Michigan College of Medicine and Surgery, Detroit, 1897; died at his home in Trenton, Mich., July 1, from erysipelas, aged 30.

Quincy Adams Bridges, M.D. Medical School of Maine, Brunswick, 1890; of Guilford, Maine; died in Berlin, N. H., May 17, from nephritis, aged 45.

William Alexander Brownfield, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1895; died at his home in Thayer, Kan., June 22, aged 69.

Byron Holmes, M.D. Rush Medical College, Chicago, 1868; of Fond du Lac, Wis.; died in the Fond du Lac County Hospital, June 28, aged 64.

James M. Ritchie (license, Texas, 1907); of Boyd, Texas; died in St. Joseph Infirmary, Fort Worth, Texas, May 20, from tetanus, aged 35.

John P. Starr, M.D. Atlanta (Ga.) Medical College, 1879; died suddenly at his home in Sunnyside, Ga., June 25, from heart disease, aged 59.

John S. Lindabury, M.D. New York University, New York City, 1862; died at his home in Bloomsbury, N. J., June 23, from paralysis, aged 83.

Albert Prentiss Ryall, M.D. University of Pennsylvania, Philadelphia, 1866; died at his home near Shelbyville, Tenn., June 20, aged 69.

William W. Rumsey, M.D. Keokuk (Iowa) Medical College, 1901; of Napa, Cal.; died in Pacific Grove, Cal., June 27, from anemia, aged 47.

Frederick Richard Loeber, Jr., M.D. Tulane University, New Orleans, 1899; died at his home in New Orleans, June 30, from general debility.

Calixto H. Dumas, M.D. Minneapolis (Minn.) College of Physicians and Surgeons, 1896; died at his home in Minneapolis, Dec. 21, 1908.

Simon Jumper (license, Ill., years of practice, 1877); died at his home in Marshall, Ill., Nov. 9, 1908, from heart disease, aged 82.

John W. Stone (license, Ill., years of practice, 1877); died at his home in Springerton, Ill., January 11, from paralysis, aged 68.

John Samuel McAdow, M.D. St. Louis, 1855; died at his home in Barnard, Mo., June 1, from disease of the bladder, aged 76.

Samuel Hall Morris, M.D. Albany (N. Y.) Medical College, 1881; died at his home in Rochester, N. Y., June 30, aged 76.

John R. Smith, M.D. Eclectic Medical Institute, Cincinnati, 1881; died at his home in North Carmi, Ill., June 27, aged 59.

Sidney L. Fuller, M.D. Chicago Medical College, 1861; died at his home in Chicago, June 16, from uremia, aged 71.

Nelson P. Walters, M.D. National Medical University, Chicago, 1905; died at his home in Evanston, Ill., June 24.

John S. Marshall, M.D. Miami Medical College, Cincinnati, 1877; died at Redlands, Cal., Nov. 18, 1908, aged 64.

B. F. Darby (license, years of practice, Ill., 1878); died at his home in Paris, Ill., March 4, from paralysis, aged 82.

Hugh Ross (license, Wash., registration, 1889); of Seattle; died at his home, May 7, aged 64.

Society Proceedings

COMING MEETINGS

British Columbia Med. Assn., Seattle, Wash., July 19.
Idaho State Medical Association, Seattle, Wash., July 19.
Oregon State Medical Association, Seattle, Wash., July 19.
Washington State Medical Association, Seattle, July 20.

AMERICAN ACADEMY OF MEDICINE

Thirty-fourth Annual Meeting, Hotel Dennis, Atlantic City, N. J., June 5-7, 1909

(Continued from page 71)

President's Address: American Characteristics and Professional Responsibility

DR. HELEN C. PUTNAM, Providence, R. I.: The variations between American traits noted by Tocqueville and other critics of the 40's and by those at the end of the century show many to be transitory; others more permanent or increasing. These last need the patriot's study. The census and other statistical reports show that we have grown from an infant among nations to a leader or rival in value of exports; suicides and insanity; inventions; murders without convictions; multimillionaires; fatalities and other accidents of transportation and industries; national wealth; infant mortality; developed natural resources; wastefulness of timbers, waters, mines and animal life; vastness of business combinations; increase of vice, social diseases, divorce; school population and educational institutions; vagaries in religion, psychology, economics and medicine; manufactures more than one-third of all the world; two million children under sixteen wage earning; tramps—distinctly an American product; unemployed and unemployable; numbers and excellence of sociologic movements for social betterment. Our mistakes are chiefly due to ignorance of and indifference to life including as a result greed and indifference to law. The medical profession is logically responsible for removing this fundamental obstacle to worthier ambitions —ignorance of biologic facts, phenomena and laws; ignorance more profound since we are so rapidly to become a nation of city dwellers. What a few public school instructors are beginning to do wisely the profession should give its utmost support to forwarding. The advance of physicians themselves depends, at this stage, more on a better preparatory foundation than on alterations in medical courses much as the latter are needed.

Division of the Fee and Commission to Physicians

DR. AUGUSTUS A. ESHNER, Philadelphia: In commerce sales usually yield profits. Medicine is neither trade nor busi-

ness. The living expenses of the physician are proportionately larger than those of the layman. The medical man can not delegate his work to others, but must attend to it himself. His leisure is restricted by the constant demands on his time. He does much work without pecuniary compensation. The physician's fee varies with the requirements of the individual case and with the skill and experience of the practitioner. The service should be adequately compensated, and equally so if a second physician is called into the case. There can be no honorable division of the physician's fee. To make such a division, or for a medical man to pay or receive compensations would be compromising and demoralizing to both donor and recipient, and at the same time disadvantageous to the patient. Nor should commissions be accepted by physicians for articles purchased by patients from druggists, instrument makers and other tradesmen.

Payment of Commissions by Specialist to General Practitioner

By DR. E. GARD EDWARDS, La Junta, Col. (Read by DR. HENRY B. HEMENWAY, Evanston, Ill.): From the practice of many leading surgeons the custom of fee splitting has spread to almost every specialty, even in minor referred cases. Seemingly, it is a general practice, even among men of high reputation, especially surgeons, and is said to be more common in the West than in the East. The time has arrived for the profession in general to be sure where the leaders, both general practitioners and specialists, stand. The existence of this custom is rarely mentioned in medical literature, almost never in medical societies and is discussed among the profession with bated breath. The horde of embryo specialists abroad in the land is partly responsible for this condition by increasing the already keen competition. Fee splitting is justifiable when a general practitioner has charge of the case before and after an operation and then only when the patient, physician and consultant have a full understanding as to the gross amount of the fee to be paid from beginning to end. No amount of regulating by societies will control it.

DISCUSSION

DR. CASEY A. WOOD, Chicago: The mainspring of this difficulty perhaps lies in the failure of the family practitioner to send a bill for services and collect just as the specialist or consultant does. In my opinion, this practice of paying commissions is not so universal as we are given to believe. I would like to know the proportion (not from experience, but from hearsay) in which it is believed to be carried on. In my judgment there is no better way of dealing with this matter than is set forth in the papers. One can not improve on the good old plan of each man collecting his own bill. The general practitioner, whether it be his own fault or not, often gets the worst of the arrangement when he brings a patient to a consultant.

DR. JOHN B. ROBERTS, Philadelphia: I have found that some men used to practice this thing and have become convinced that it is wrong. I can not see how any honorable upright person, whether physician, preacher, lawyer or business man, could ever believe that such a thing was a possible thing to do with professional propriety. It is possible that one reason for the existence of the evil is that a great many men go into medicine without any professional training in the office of a preceptor, and we who are beyond fifty or sixty must remember that we have acquired our ideas of right by absorption of the atmosphere of our preceptor's office. I think the question comes down to the point that it must not be the societies, but the colleges that must teach these men the right.

DR. F. T. ROGERS, Providence: When the average practitioner of medicine appreciates the fact that when he devotes time to an unusual case he should charge more than the usual fee the question of fee splitting will be settled.

DR. W. A. KICKLAND, Fort Collins, Colo.: I come from the same state as Dr. Edwards and understand his position and I must admit that the custom of fee splitting in my section is very prevalent. I do in a little way some referred work in surgery but there are a very few men who allow me to charge my own fee, the proportion being sent me. The cases from which I get my larger fees are from my own general practice.

DR. A. ESHNER, Philadelphia: It seems to me that the single solution is that the patient must understand that he is to pay for the services rendered to him, whether by the general practitioner, the specialist or the consultant and that this must be a common understanding among the three. Therefore, there need be no division of the fee. It seems to me that the obligation to split a fee must be compared with the temptation to which a good many, particularly the younger men are subjected, when women come to them and ask to be relieved of the product of conception. If he declines they probably tell him that some other physician will do it. Do we think that sufficient reason to acquiesce?

A Celebrated Malpractice Suit, 1821-1826

DR. JAMES A. SPALDING, Portland, Me.: The lawsuit of Lowell of Lubec, Maine, vs. Dr. Faxon and Hawkes of Lubec and Eastport, Maine, respectively, probably gave rise to more discussion and literature than any other ever before the public and the medical profession of New England. Lowell was thrown from horseback and injured by the horse falling back on him in 1821, suffered from an alleged hipjoint dislocation, was maltreated and neglected as he claimed by the above physicians, consulted Dr. John Collins Warren of Boston, was operated on by him and the staff of the Massachusetts General Hospital, and obtained from those physicians under legal threats affidavits inculpating the Maine physicians. After three extended trials the case was thrown out of court and for four years afterwards publications concerning both sides were widely distributed. This case seems unique in that long afterward a postmortem examination was made, something so far undiscovered as other malpractice suits have been investigated. It is also interesting from this examination to discover that no one of the many physicians involved seems to have made an absolutely correct diagnosis.

DISCUSSION

DR. GAY, Boston: I do not think that in the experience of the Boston City Hospital, the largest hospital in New England, and one which cares for 10,000 patients a year in its wards, they have had a dislocation of this sort, with one exception. I think Dr. Spalding deserves the thanks of the profession for the great pains he has taken to clear up this case.

DR. J. A. SPALDING: I should like to know if anybody ever heard of a postmortem being held in a malpractice suit. I should also like to say that I hope we shall sometime have before this Academy a discussion on the desirability of insurance against malpractice suits.

(To be continued)

MASSACHUSETTS MEDICAL SOCIETY

One Hundred and Twentieth Annual Meeting, held at Boston, June 15-16, 1909

Officers Elected and Committee Reports

The officers elected were given in THE JOURNAL, July 3, page 36. Dr. Frederick H. Gerrish, Portland, Me., was elected Shattuck lecturer for 1910.

Dr. Harold C. Ernst, chairman of the Committee on Medical Education, reported his attendance at the meeting of the Council on Medical Education of the American Medical Association ,and the results as recommended for a desirable medical curriculum. He recommended that the Massachusetts Medical Society endorse the action of the Massachusetts State Examining Board in its pioneer work of causing practical work to be a part of the examination for registration.

Dr. George W. Gay reported for the Committee on Legislation that up to that time no measure opposed by the committee had been enacted by the Massachusetts Legislature.

Dr. Frank G. Wheatley, for the society's Committee on Revision of the U. S. Pharmacopeia, reported that circulars were to be sent to each member of the society asking that all useful drugs in the U. S. P., and all new ones worthy of admission be named. The committee felt this will answer a useful end.

The result of the last meeting of the Legislative Council of the American Medical Association in Washington, D. C., was reported. It was found that advertising quacks and vendors of medicine had been driven from Kentucky and that the work

of the physicians in this particular had been ably supported by the Louisville papers, also that no advertising quacks are remaining in North Dakota.

The model vital statistics and pure food laws of the American Medical Association were commended. It was reported that there were two classes of chemists in the United States, one class acting in the interests of the people and the other in the interest of the manufacturers.

Surgical Antiseptics

DR. DANIEL E. KEEFE, Springfield: Antiseptics have not always been used in the past with the same intelligence as is possible at present. It can hardly be doubted that irrigation with potassium permanganate or hydrogen peroxid may have been causative of unfortunate results following operations and the lethal result unjustly charged to the surgical procedure. Iodoform is rightly considered as having dangerous features and is less used than formerly. During surgical shock saline infusion is contraindicated, as it still further overloads the already overburdened heart. Overfilling the vessels can do no good until the nerves recover their function. It is most clearly indicated in postpartum hemorrhage or uremia. Strychnin in large doses given frequently—0.002 to 0.006 every three hours—is a fad, and is a reprehensible practice. Laboratory work is aiding us rapidly in passing from darkness to light in all methods of treatment.

Diagnosis of Duodenal Ulcer

DR. ERNEST A. CODMAN, Boston: This paper is founded on forty-nine proved cases of duodenal ulcer. This lesion is becoming increasingly common, and is more common than gastric ulcer and nearly as common as appendicitis. Perforation and hemorrhage are rightly considered not common symptoms but accidental accompaniments. The diagnosis is rarely made before operation, and is confused with dyspepsia, appendicitis and gastric neuroses. Even with the hand on the stomach cancer of pylorus and cancer of pancreas may be suspected. Males from 20 to 50 years are mostly affected and occupation seems not to be important. It is a disease of hard-working men. Cardinal symptoms are often present, yet may be entirely absent. The ulcer may exist without pain, hemorrhage, perforation or vomiting. One feature is fairly constant, *i, e.*, pain, and diagnosis may often be made from it alone. Pain two hours after meals or attacks before meals, with vomiting, may warrant a provisional diagnosis. Often a patient improves under rest and treatment. Then resumption of work, especially to excess, or the indulgence in alcohol, causes the chain of symptoms again. Relying on, or waiting for, the symptom of hemorrhage is often the cause of failure of diagnosis, but when present and accompanied with hunger pain, is certain. Tenderness is often present and is usually slightly to the right of the ensiform cartilage. Belching is of little value and is a symptom common to other disturbances. Diarrhea and constipation are not important symptoms. Jaundice may occur due to inflammation around duodenum. Vomiting occurs when the pylorus is contracted by stricture, and improves when the stomach is resting. Vomiting comes at the height of the pain. Chemical analysis is of little help, as shown by experience. "Sour stomach" and "heart burn" are of some value in diagnosis and are often present and with pain we can make provisional diagnosis. Autopsy at Massachusetts General Hospital shows 1 per cent of all examinations. In differential diagnosis, gallstones and gastric ulcer must be considered.

Localization of Pain, Tenderness and Hyperalgesia in Diagnosis of Common Abdominal Diseases

DR. GARRY DE N. HOUGH, New Bedford: The local symptoms only are considered in this paper. Clear cases of abdominal trouble are fairly well understood, but there are many obscure ones. In appendicitis, pain, tenderness and rigidity are the usual symptoms. But pain may be on the left side all through the attack, and if the organ is elongated the pain may vary considerable in position. Areas of hyperalgesia in various abdominal diseases are of value but they vary in their presence. Absence is of no value, but presence is positive evidence of certain diseases. These areas may be elicited by using a sharp needle on the abdomen, covering the point with the palmar surface of finger pulp. There are six plain areas of nerve distribution showing the hyperalgesia and corresponding to disturbances of gall bladder, cecum and appendix, ovary and tube, stomach, kidney and ureter. Occasionally one finds atypical areas. In all obscure abdominal lesions one should seek areas of hyperalgesia, which when found do not lead astray.

Acute Dilatation of the Stomach Following Surgical Operation

DR. HOMER B. SMITH, Boston: Acute dilatation is not a disease but a complication, and may be concurrent with any medical or surgical disease. Death may be directly due to it. Dilatation occurs most frequently following abdominal operation under general anesthesia. Operations on the biliary apparatus are frequent causative factors, but it may occur after appendix operation. My conclusions, based in part on six personal cases, are that the condition is not always recognized, and treatment, to be effective, must be prompt. The vomitus is usually bile-stained but not fecal, due to the paralysis occurring distal to papilla in duodenum but not much beyond. It is a paralysis of the stomach and upper part of the duodenum and is not mechanical. It can not be stated that the inhibition is central or peripheral. The condition is probably not often caused by trauma. Kelly has blamed the anesthesia. It is not a local but a general paralysis. Paralysis of the vomiting apparatus and a portion of the bowel accompanying it. There is usually no return of paralysis after treatment. Mesenteric ileus may be a secondary effect and due to mechanical defects. Diagnosis is not difficult. Vomiting usually comes on ten or twelve hours after operation, and a leaking or welling up of fluid from the stomach is very suggestive. The stomach tube should be passed early and as often as necessary. Prognosis with early treatment is good. If not treated the mortality reaches 60 per cent. The rectal tube is of value. Operative proceedings are not indicated. This disease is comparatively frequent.

(*To be continued*)

AMERICAN NEUROLOGICAL ASSOCIATION

Thirty-fifth Annual Meeting, held in New York City, May 27-29, 1909

The President, DR. S. WEIR MITCHELL, Philadelphia, in the Chair

The officers elected were noted in THE JOURNAL, July 10, page 125.

President's Address: Nature of Nerve Force and the Deep Reflexes

DR. S. WEIR MITCHELL, Philadelphia: There is a comparative rarity in the proceedings of this body and of other associations of matters of therapeutic interest. The present is the trimphant hour of diagnosis which is the parent of logical, legitimate therapeutics. The physiology and pathology of the negro should receive more attention from neurologists. There is a rarity in the negro of this country of such diseases as chorea, tabes, migraine and exophthalmic goiter. Considering the relation of the black skin to heat and light rays, there must be in the negro some automatic compensatory mechanism for regulating the body temperature other than that which we possess. Therefore, we need for the negro a new and complete study of the blood in order that we may get clearer ideas as to his immunity from such diseases as yellow fever and malaria and help to solve the problems of protection from such diseases by immunizing serum.

The physiology of persons who have lost large parts of the body by multiple amputations is a subject worthy of investigation. Long ago I studied diseases of stumps and the psychics of lost limbs, but the subject in recent years has been neglected.

I will next take up neural energy, its nature and modes of transmission. I use the term neural energy without committing myself to any special theory. The rate of transmission of nerve energy in the ameba and lowest forms of animal life in which it is a general diffusion is only about three feet per second, whereas, in the higher vertebrates, where it moves along chosen pathways, it reaches as high as 150 feet per second. There is an enormous output of energy relative to the small size of the productive sources of supply, as shown by Dr. H. H. Donaldson's contributions. In the adult human brain of 1,360 grams

the weight of all the nerve-cell bodies is less than 27 grams. There are nine thousand two hundred million nerve-cell bodies in the new-born babe and the same number in the adult. These occupy one and thirty-seven hundredths of the volume of the cortex; 2 per cent. represents the proportional volume of the cortical cell bodies, including all the dendrons. Many agencies affect the delicately responsive neural conductors and their related centers, those which are most common being related to variations in atmospheric pressure and storm conditions.

These living wires, the nerves, eat, drink and eject and are fed and do work and must therefore undergo chemical changes through loss and for repair. Certain excito-contractile impulses are found in plants and these are probably identical with those observed in animals, as is evidenced by observations on the mimosa. I could well imagine a neurotic crusade against cruelty to plants after watching experiments on the mimosa. The analogue of the irrito-contractile muscle of animal life is in the plant cell walls, which, contracting, expel fluid and thus cause in the leaves mechanical changes of position. Numerous observations and experiments have been made on plants, especially the mimosa, with a view to determining the analogies between the movements of such plants and those occurring in the living animal.

As regards the reinforcement of reflexes the researches of Mitchell and Lewis, Bowditch, Howells and other American contributors to this subject show that not only the hand grasp and other coarse movements tend to increase the muscle-muscle and the skin-muscle response but that nearly every distinct sensation increases them. Sudden light or sound, remotely applied heat, abrupt cold, a pinch, the pull on a single hair add to the response. The explanation of these reinforced phenomena appears to be that the afflux of energy giving increase of the reflex is due to the liberation of energy far in excess of the functional needs of the active organ, that is, an overflow of energy as is shown by observations and investigations. Speaking of the practical applications of this study of overflow, is it not conceivable that there are acquired conditions of the body, neurasthenic and hysteric, in which these endless normal overflows may be mischievously felt and may account for suddenly visible symptoms of nervous excitement? An interesting clinical phenomenon which I believe illustrates the subject of overflow is to be seen in the case of violent facial neuralgia in which talking, laughing or chewing evokes maddening pain. Is this not an example of reinforcement from overflow of related motor centers affecting a sensory ganglion excitably ready to call forth the phenomenon called pain?

Errors in the Diagnosis of General Paresis

DR. E. E. SOUTHARD, Boston: Two hundred and forty-seven cases of mental disease passed through the daily clinics of the Danvers Insane Hospital and later came to autopsy during the years 1904-1908. Sixty-one of these were diagnosed clinically with more or less certainty as cases of general paresis, and 41 of the 61 as absolutely certain. In 35 of the 41 the diagnosis was confirmed at postmortem, and 2 more appeared at autopsy, although unsuspected during life. These 2 unsuspected cases and the 6 erroneously diagnosed cases have been specially studied. Tabes and cerebellar arteriosclerosis, in the presence of mental symptoms, are shown to be two main causes of error in the positive diagnosis.

DISCUSSION

DR. J. K. MITCHELL, Philadelphia: Have any of these cases presented undoubted combination of tabes with general paresis?

DR. E. E. SOUTHARD: Only one of the cases showed a combination of tabes and general paresis, but there were a number in which there was a lesion in the spinal cord plus characteristic changes of general paresis. I think there is a pure tabes associated with paresis.

Sensory Functions (Especially Stereognosis) of the Pre-Rolandic Area

DR. HERMAN H. HOPPE, Cincinnati: The object of this paper is to show how often astereognosis occurs in lesions of the motor zone and whether the loss of stereognosis is in any way distinguishable from the loss of this function due to lesions of the parietal lobe. My first case was one of loss of stereognostic sense combined with loss of msucle sense and sense of position. Autopsy showed a non-infiltrating tumor the size of a hen's egg situated subcortically in the superior parietal convolution. My second case was one of subcortical solitary tubercle involving the arm center in the ascending frontal convolution and the neighboring frontal lobe, demonstrated at operation. Prior to operation there was some astereognosis in the right hand, and after operation, which involved the tumor site, astereognosis in the right hand was marked. My third case was one of left brachial monoplegia following Jacksonian seizures without any loss of sensation prior to operation. At operation no gross lesion was found, but, after locating the center for flexion and extension of the hand, this center was excised. Following operation there was complete paralysis of the left arm with complete astereognosis, all other qualities of sensation being intact. The question which arises is whether astereognosis unassociated with loss of tactile and muscle sense would indicate a lesion of the motor zone and astereognosis with loss of tactile sense, muscle sense and sense of position indicate a lesion of the parietal lobe. This question can not be decided by a study of recorded cases, although many cases would seem to answer in the affirmative.

DISCUSSION

DR. MORTON PRINCE, Boston: The whole question of stereognosis is a matter of fact and not of induction. If there is a disturbance of muscle or tactile sense, it is impossible for anyone to determine what an object is. There are a number of cases on record of asymbolia and stereognosis, meaning by asymbolia loss of power to recognize objects when there has been no loss of tactile sense. The important thing is to determine whether or not there is loss of the sense of position, localization, and so on. Very accurate and careful tests must be made and they must be made by precise methods.

DR. C. K. MILLS, Philadelphia: There are several interesting points in Dr. Hoppe's communication. A number of things in the paper seem to contradict the views which some others as well as myself hold personally. In such cases we have to take information on various points before deciding as to their absolute value. The operative points can not be absolutely depended on with regard to the exact extent of the absolute section and also with regard to the extent of the influence of that section. We have to take into consideration the physiologic reaction along certain anatomic-functional lines. Undoubtedly, the motor region is connected by associated fibers with the stereognostic region if it exists, and also doubtless with sensory regions in the postcentral convolution. We have in these cases the abeyance or the loss of such a sense as stereognosis exists without impairment of the muscle sense or sense of position. To a certain extent it proves not that there is no astereognostic center in the parietal lobe but that by the destruction of entering tracts astereognosis may be produced.

DR. WILLIAM G. SPILLER, Philadelphia: Dr. Hoppe has said that these disturbances of stereognosis with pain were present only for a short time after operation. They were not persistent. There are other things to be considered in judging of results from operation. Dr. Hoppe has considered the results carefully. We must be careful after operation on the brain in reaching conclusions. Not only is there disturbance of associated areas, but there is also disturbance from handling the brain; there is disturbance in function of that part, and, what is more serious, in excising any portion of a brain it is necessary to tie the veins supplying that portion. As a result of this tying, the circulation is disturbed in adjoining areas of the brain, and softening may occur from this, even if no great number of vessels are tied.

DR. F. W. LANGDON, Cincinnati: As bearing on the existence or non-existence of a special stereognostic center I wish to place on record an observation made ten or twelve years ago. A man was struck by a stone, resulting in a puncture fracture over the parietal region corresponding, presumably, to the arm or hand center. In ordinary tests he could not even feel objects in his hands, but when I put into his affected hand a silver dollar he would say: "That is a half moon." If it was put into the other hand he would say: "That is a dollar." He was illiterate and did not possess sufficient education to speak of a half circle but translated the impression he re-

ceived from the dollar as "half moon." That would not have corresponded to loss of tactile sense in one finger. It might be called a partial lesion of the stereognostic centers.

DR. B. SACHS, New York City: An experience I have recently had may throw a little light on this subject. A young woman had the general symptoms of brain tumor with very slight involvement of the upper extremity. Aphasia was complete and there was not only asymbolia, but absolute loss of all sense of the muscular movements. In this case the aphasia was by all means the most pronounced symptom. The paresis was so slight that except for detailed examination it might have escaped altogether. The aphasia was the one single symptom. Basing the location on that fact, I suggested that the surgeon go in over the arm center, but that he keep as far posteriorly as possible. There was found a tumor which extended to the central fissure and invaded a considerable portion of the cortex into the parietal region. Within twenty-four hours of the time of operation the aphasia disappeared entirely. The paresis, however, remained exactly the same as before the operation and is practically the same to this day.

(To be continued)

ARIZONA MEDICAL ASSOCIATION

Annual Meeting, held at Prescott, May 19-20, 1909

The officers elected were noted in THE JOURNAL, June 5, page 1843.

The Physician's Duty to the Public

DR. JOHN W. FOSS, Phoenix: The physician is granted certain privileges and certain public exemptions. It should be his duty to teach the youth so that they understand the nutritive and sexual functions and in this way prevent many of the mistakes which are made during adolescent life. Young men and young women should be thoroughly instructed in all the functions necessary for them to understand the exactions devloving on them as parents. The physician should be conversant with all public questions, as the confidence reposed in him as a family physician gives his opinion much weight with those with whom he comes in contact.

Surgical Technic

DR. JOHN B. MCNALLY, Prescott: The surgeon should exercise extreme care not to vitiate aseptic measures by carelessness. Steam under pressure is the best method of sterilization. Open steam fractional method is also recommended. An antiseptic conscience is developed by antiseptic practice.

DISCUSSION

DR. WILLARD SMITH, Phoenix: The surgeon should have as few assistants as possible and as little paraphernalia as convenient. This limits the danger of infection. In my experience more infections occur when strong antiseptics have been used instead of weaker solutions. We should endeavor not to destroy the natural bactericidal qualities of the tissues.

DR. STANLEY STILLMAN, San Francisco: I think the use of rubber gloves in septic cases very essential.

Anterior Poliomyelitis

DR. A. J. ROSENBERRY, Jerome: One-third of the patients applying for treatment of deformity at institutions are suffering from this disease. It is epidemic during the summer, it is contagious, and there is early acute congestion of cord. Structures supplied by the anterior spinal artery are inflamed. In muscles which respond to faradism there is a possibility of recovery. Massage and electricity give the greatest relief.

DISCUSSION

DR. S. STILLMAN, San Francisco: Three months is too short a time in which to give up hope. I have seen positive improvement after eight or nine months' treatment.

DR. BARLOW: It is very importanut to give the family the prognosis early, otherwise the surgeon is often blamed. With the reaction of degeneration prognosis may be given hopeful but slow.

Infant Surgery

DR. STANLEY STILLMAN, San Francisco: Infants stand surgical operations as well as or better than adults. It is astonishing during the first few weeks of life how much violence the infant can stand. The same immunity does not extend after three or four months. Nevus and harelip are best operated on as soon as discovered. Within three months from birth infants suffer less from shock than afterward, but at any time they resist shock as well as adults. All operations should be done with as small blood loss as possible. There should be no more apprehension of anesthesia in infants than adults. I advocate chloroform. Surgeons should have a skilled anesthetizer for either infants or adults, if possible. Infants do not well stand deprivation of food or reduction of temperature; the operating room should be warm. Repair is rapid, sutures should be removed early. Infants' lives should not be sacrificed by ultraconservatism.

Trachoma

DR. DANIEL W. WHITE, U. S. Indian School, Phoenix: Trachoma causes serious damage to vision and is caused by a micro-organism not yet isolated. Hygienic and sanitary measures are most important in prophylaxis. Trachoma is easily transmitted by hands, the family is the primary vidus of infection. Indians would not be more susceptible than whites if they lived in the same hygienic conditions. Trachoma is found under all climatic conditions. Until the cornea is involved the seriousness of this disease is usually not realized. Prophylaxis is the all-important goal. Copper sulphate stands first as a remedy. In operative treatment expression followed by copper sulphate is best. The period of treatment is from three to eight years. Thoroughness of expression of the follicles is essential. The physician should not wait, but begin treatment at once.

Infections of the Conjunctiva

DR. ANCIL MARTIN, Phoenix: Pneumococcus infection is one of the most common in conjunctivitis. Infections of the conjunctival sack are most dangerous in the abnormal conditions of the eye. Microscopic examinations of the conjunctival secretions is very essential to determine the safety of operative treatment.

Immunity and Tuberculosis

DR. W. WARNER WATKINS, Phoenix: There is relative immunity to tuberculosis. It is possible in a healthy organism to produce immunity. An attack of tuberculosis positively cured, produces a positive immunity to tuberculosis. It also produces immunity in the offspring.

Immunity and Serotherapy in Tuberculosis

DR. JOHN W. FLINN, Prescott: There is a high degree of immunity in cattle to the human tubercle bacilli. The use of living human bacilli to produce immunity is unsafe. The degree of immunity is proportionate to the degree of virulence of the material inoculated.

Rabies, With Report of Cases from Skunk Bites

DR. C. E. YOUNT, Prescott: After careful investigation, I am of the opinion that the skunk is not more the cause of hydrophobia than the dog. It seems that while it is possible for one to have hydrophobia after being bitten by a skunk, the idea has gained ground to such an extent in the Southwest that all skunks are called hydrophobia skunks. This is based on a simple psychical impression and not based on fact.

Differentiation of Reflex Dyspepsias from Primary Organic Diseases of the Stomach

DR. DUDLEY FULTON, Los Angeles: Many dyspepsias are due to other diseases of the body. They are functional rather than organic. It is important to determine whether dyspepsia is functional or organic. Dyspepsia is but little influenced by diet. Pain is exceedingly rare in functional dyspepsia.

Education of the Public

A resolution was passed advising all county societies to inaugurate a series of public lectures for the education of the people in matters pertaining to hygiene and sanitation.

IOWA STATE MEDICAL SOCIETY

Fifty-Eighth Annual Session, held at Dubuque, May 19-21, 1909

(Continued from page 139)

Early Diagnosis of Children's Diseases That Lead to Deformities

DR. FREDERICK MUELLER, Chicago: The prevention of the deformities in children's diseases that lead to malformations is just as important for the ultimate good result as the application of the orthopedic surgical methods later, because best results can only be expected in patients who reach the orthopedic surgeon in not too neglected a condition. An early diagnosis of such troubles on the part of the general practitioner is indispensable, and it is he who should administer the first aid in all such cases.

DISCUSSION

DR. C. S. GRANT, Iowa City: One of the more common conditions, which unfortunately in this state is not considered common, is rickets. I have seen it in both the breast-fed and the bottle-fed children. In one locality I found a great many cases in families in which the mothers worked in the field. Examination of the milk showed a deficient amount of fat, and my conclusion was that its lack was primarily the cause of rickets. In bottle-fed children, unfortunately, the more common foods are the artificial ones, from which the child receives a great deal of maltose or sugar in some form and very little of the fat or protein. In the case of breast-fed children, when it was impossible to increase the supply of fat through the ordinary methods of feeding and hygiene, I have sometimes attempted feeding by a modification of cow's milk. There is no question but we have neglected the scientific modification of milk too long. Some two or three years ago my attention was called to the use of citrate of soda, with the claim that the alkaline citrates in the milk assisted in the absorption of the rest of the salts. I believe it a much better alkaloid to use than either bicarbonate of soda or lime.

SYMPOSIUM ON TUBERCULOSIS

The Movement Against Tuberculosis in Iowa

DR. J. W. KIME, Fort Dodge: An educated medical profession is the first essential in our efforts to stamp out this most universal disease. With this accomplished, 4,000 centers of information, 4,000 teachers of the public are at once installed to spread this knowledge throughout the state. The board of control, which is entrusted with the conduct of the educational campaign against tuberculosis in Iowa, is keenly alive to the importance of prevention, early diagnosis and modern treatment, and has sought to stimulate discussion in the various county medical societies on these subjects. I have visited practically every county in the state during the past year, and in my discussion with the medical men on early tuberculosis and its recognition, I have found them well abreast with the times. The board has asked me to meet with the societies the coming year for the purpose of discussing with them the modern treatment of tuberculosis, and I anticipate an even more enthusiastic reception for this subject. The state veterinarian and the State Agricultural College at Ames are rendering excellent service in educating the masses on the subject of animal tuberculosis. The State Board of Health has done great good by its recommendation that all cows be tested with tuberculin before milk may be sold from them; also by urging the passage of antispitting ordinances. I believe that the question of animal tuberculosis, and especially of tuberculosis in dairy herds, has been altogether too lightly considered, and that this disease will continue to spread until we become wise enough to secure milk from cows that are known to be free from disease. During the coming year the work in Iowa will be prosecuted with greater vigor than ever before.

Tuberculin in Treatment of Tuberculosis

DR. FRED ALBERT, Mason City: There is no longer any question that large doses of tuberculin, followed by marked reactions, are harmful and dangerous. It is equally true that very small doses, in properly selected cases, when carefully observed, can do no harm, and usually are followed with distinct benefit, irrespective of the kind of tuberculin used and the method of administration followed. We should ever hold in mind that tuberculin therapy is an adjunct and not a substitute for the general hygienic-dietetic treatment. If the patient does well under general treatment and improves rapidly, we can content ourselves without using tuberculin. It was its indiscriminate use on all patients alike when it was first introduced that brought it into such general disfavor. It should be employed (1) in incipient cases, where no ulceration with secondary infection has taken place; (2) in chronic fibroid cases, which run little or no increased temperature; (3) in all localized cases. Some authorities claim it can be used in advanced and incurable cases to great advantage, relieving distressing symptoms. Bacterial vaccines are expected to produce good results in many incipient and chronic cases of pulmonary tuberculosis, and in most localized cases. It will do good in those cases in which there is little absorption of toxins by the system and constitutional disturbances are absent. Tuberculin filtrate is especially indicated in many incipient cases in which there is a mild toxemia. The toxins having been neutralized, the local disease is influenced secondarily by the increased resistance produced by general treatment. Initial doses must be small. When the filtrate is administered to produce toxic immunity, the initial dose is usually 1/1,000 mg. A jump is never made from, say, 1/1,000 mg. to 1/100 mg., but it would require ten doses to pass from one to the other. The interval between injections is usually three or four days, and when the larger doses are reached a week or ten days. If symptoms of intolerance are manifested, the doses must be lessened and given farther apart until these symptoms disappear. The least number of injections which should be required in passing from minimum to maximum dose is about fifty—extending over five or six months: and in many cases it is better that ten or twelve months be covered.

Early Diagnosis of Tuberculosis

DR. R. E. CONNIFF, Sioux City: Too much emphasis can not be placed on the importance of early diagnosis in tuberculosis, particularly of the lungs. Indifference on the part of the patient and carelessness on the part of the physician are the principal factors in our failure to detect early evidences of infection. More time, closer study and greater care must be observed in making examinations, as well as a broader application of the knowledge thus obtained. Tuberculosis is a disease closely associated with disturbances of nutrition. Every evidence of lessened vitality, either local or general, should receive most careful consideration and make us mistrustful of possible foci of infection. Physical signs are rarely found in incipient cases. The microscope, once thought necessary to a positive diagnosis, is useless in the early stage of tuberculosis. There is no typical or diagnostic symptom in this stage of the disease, but a careful consideration of the "symptom complex" will reveal enough evidence to make the diagnosis positive in most cases, if the physician will insist on repeated examinations and compare carefully the findings at each sitting, bearing in mind always the slow development and the non-irritating character of unmixed tuberculous infection. The tuberculin test as a diagnostic is rapidly growing in favor, a large number of physicians finding it more helpful each succeeding year in clearing up doubtful cases. It should be carefully and intelligently used, in connection with other methods of arriving at positive knowledge, which will aid us, after weighing carefully all the evidences offered, in making the earliest possible diagnosis.

Pathology of Tuberculosis

DR. E. W. MEIS, Sioux City, discussed the early pathologic changes in tuberculosis, beginning at the entrance of the bacillus and following the tissue changes to the point of beginning cavitation; also the favorable changes which take place when arrest occurs, and treated of the various methods of repair. He described the route of infection and morphology and nature of the tubercle bacillus, and touched on the body resistance to the disease.

Discussion on Tuberculosis

DR. A. L. WRIGHT, Carroll: There are 10,000 people in Iowa to-day suffering from tuberculosis, and the death rate is estimated, I believe, at 2,500 *per annum*. It is estimated by statisticians that of those now living in the United States 5,000,000 will die with tuberculosis. I present these figures simply to emphasize the frightful mortality accompanying tuberculosis, which all the essayists have touched on. I think diagnosis must be based on the more general use of tuberculin at a period when there are no physical signs. Then we can expect to accomplish a cure in most cases; not when the lung is beginning to show evidence of invasion.

DR. PAULINE MYERS-TOWNSEND, Marshalltown: In America it seems to me we need to call much more attention to industrial insurance. Germany has led so far in the placing of responsibility on the industries where the conditions are such as to favor tuberculosis. Our physicians should be a potent factor in educating the American people on employers' liability acts and general industrial insurance.

DR. EDWARD HORNIBROOK, Cherokee: In an old treatise on consumption, published in the last century (I think by Thompson), is mentioned one symptom, which is stated by the author as pathognomonic in the early stages of consumption, and nowhere else have I seen it. I have tested it in almost every case of consumption or suspected consumption that has come under my notice for nearly half a century, and I am anxious that my professional brethren also give it a test. The author says that if you take a consumptive patient and one that is not consumptive, count their pulses in report, and then set them both to take active exercise, the person who has not consumption will have a much greater increase in the pulse rate than the patient who has consumption. The usual rate of increase that I have found in women not too robust in walking three or four times across my office, going down stairs and coming up again pretty rapidly, is about thirty beats a minute. In the consumptive, if not too much debilitated, as they are not in the early stages, the increase will not be over ten beats. Another sign that not much stress is laid on in the modern text-books is prolonged expiration. I have always found it—not exactly in the first stage, but before the disease is very far advanced. In my opinion, it is an error to put off the diagnosis until one can demonstrate by physical signs or by instruments of precision. If suspicious, the physician should tell the patient candidly that he is in doubt, but that the treatment he is going to give will prevent consumption if it can be prevented. Put the patient on the best hygienic treatment, and he will recover whether he has consumption or not.

DR. W. H. DEWEY, Moville: It is not a difficult thing for the country physician to get people to cooperate with him heartily in providing open rooms adjoining the house for the accommodation of their afflicted ones. Of course the sanatorium gives these patients many conveniences that can not be provided for at home, but patients away from home are often homesick, and there are so many things that militate against the advantages to be found at the sanatorium that sometimes they are almost entirely overcome.

Fallacies in Preventive Medicine

DR. B. L. EIKER, Leon: Educate the masses of the people so that they understand the dangers incident to the common infectious diseases. This has been accomplished with tuberculosis, and in like manner can be accomplished with other diseases of the same class. Petty jealousies and local prejudice among the physicians of the state have done much to retard the progress of preventive medicine. The cause of much trouble and endless loss of life is frequently brought about by hasty diagnosis made when no man, however skilled, can tell to a certainty the true nature of the malady. Local boards of health are negligent in their duty as sanitarians, and labor under the impression that a dollar saved to the town treasury is worth more than the lives of their neighbors' children. Laws, rules and ordinances are not needed in Iowa so badly as a campaign of education along the lines of preventive medicine. Educate the people and they will formulate their own rules and observe them.

SYMPOSIUM ON OPHTHALMIA NEONATORUM IN IOWA TO-DAY, WITH A CONSIDERATION OF PROPHYLAXIS.

Ophthalmia Neonatorum: Cause, Prevalence and Prophylaxis

DR. L. W. DEAN, Iowa City: Blennorrhea neonatorum is an infectious conjunctivitis developing usually on or before the third day after birth, never after the fifth. Most cases are the result of infection in the eyes of the child by the secretion from the diseased genitals of the mother, the micro-organisms gaining entrance into the conjunctival sac as soon as the child opens its eyes. Generally the gonococcus infections are most severe, but the severity of the infection is never an absolute indication as to the germ concerned. In 1906, 183,012 births were registered in the state of New York, this disease appearing in one out of every 200 births. One-quarter of all the blind children in all the blind schools of this country are blind because of this disease. In 1881 Professor Credé of Leipsic announced the important discovery that a single drop of a 2 per cent. solution of nitrate of silver dropped into each eye of a new-born infant, would destroy the germs of ophthalmia neonatorum where they existed, and would not injure the sight of healthy eyes. The value of this discovery is now accepted by all physicians of standing, who use nitrate of silver, or derivatives of the silver salts as part of their routine practice in confinement cases. Prophylactic measures at the time of birth are so simple and so devoid of danger in using that neglect to carry out this procedure seems almost a crime.

The Cost of Ophthalmia Neonatorum in Iowa To-day

DR. A. R. AMOS, Des Moines: There is no doubt that the chief concern of the state and community in the blindness of ophthalmia in the new-born is an economic one. The public asks the question, how much does it cost us to maintain these persons? Notwithstanding, there is a moral cost to the community outside the family of the blind, not to be overlooked. Of all cares of the state the education of its blind children is both the most hopeless and most expensive. If we shall look, however, to the economic loss nearer home, it will be found that the cost of blindness to families is very great. The man groping his way about, or staring with bent brows to see his work, is seriously handicapped. The woman, still more unfortunate, may find her fortune seriously marred by the ugly scar of infancy, as her character is sullied by its unsightly appearance.

The Practical Aspects of Prevention of Ophthalmia Neonatorum

DR. R. M. LAPSLEY, Keokuk: A line should be required on each birth certificate, stating condition of eyes at birth, and also what prophylactic, if any, had been used. All cases of ophthalmia neonatorum should be at once reported to the authorities, and if the case has been handled by any one other than a physician, the case should be put under treatment of a physician. Such a law is now on the Iowa statutes, but has not been enforced, and some penalty should be devised for disregarding it. The people in general need to know that the baby may acquire a disease in its earliest infancy that will endanger its eyesight. A record of number of births and number of cases should be kept by the State Board of Health; and it would be well to have a report of all unfavorable results when the disease was healed. The extra expense would be small, and is well justified, because a permanent check on the usefulness of the system would always be at hand.

Résumé of Ophthalmia Neonatorum

DR. E. R. LEWIS, Dubuque: Agitation presupposes at least two things on the part of the agitators: dissatisfaction with existing conditions, and belief in their ability to better them. We are appearing as agitators sincerely. The prevention of this disease requires no expensive armamentarium, no costly drugs, no time-consuming special attention, no special technical skill. It is the plain duty of the state to maintain supervision over conditions influencing the health of its citizens and to prevent all possible disease. If state prophylaxis of ophthalmia neonatorum is to be instituted, it would fall naturally into the hands of the State Board of Health. From this board

must come the regulations concerning the use of prophylactics, and to it must be left the enforcement of such regulations. The existence of a dead-letter law is a reproach to the citizens of a state. Let such laws as are passed carry with them penalties sufficiently severe to insure their strict observance. The experience of Massachusetts and New York in this matter is sufficient justification for this demand. Last year the Iowa State Medical Society, in common with most other state medical societies, appointed a committee to take up the matter of the prevention of ophthalmia neonatorum in the state. It has seemed to this committee advisable to recommend taking steps to secure accurate and complete data in regard to this disease in Iowa, for the obvious reason that up to the present we have had no means of ascertaining anything definite regarding it. The means of securing these data is already in our hands, in the birth certificates, to which it would be necessary to add only a few lines. Revocation of license to practice should be the penalty for repeated neglect to use prophylaxis or for false entries on the birth certificate. Prophylactics deteriorate with age and exposure to light. It seems advisable, therefore, that the state should furnish free to physicians, midwives and nurses small containers of fresh prophylactic. The cost of providing silver nitrate in special light-proof ampoules for the whole state of New York does not exceed $3,000 annually. Inasmuch as many births are attended by midwives or maternity nurses, provisions should be made for their special supervision, including the issuance by the State Board of Health of a circular of instructions in regard to the care of the eyes of the new-born. Attendants should be required to report ophthalmia neonatorum as a communicable disease, and provision should be made for bacteriologic examination of suspected secretions on application to the local health physician.

Medicolegal

"Abortion" and "Miscarriage" Synonymous

The Supreme Court of Colorado says that it was argued in Marmaduke vs. People, where the party named was held to answer the charge "of attempt to procure an abortion," that such charge was not a criminal offense, as under the statute of that state there can be no crime for attempt to procure a miscarriage or abortion unless it appears that the attempt was on a woman with child. It is quite true that such facts are essential elements to constitute the offense; yet the word "abortion" has a distinct and definite meaning when used in judicial proceedings that necessarily implies all such essential elements. While the statute referred to does not use the word "abortion," yet it does use its synonym, "miscarriage." "The word 'abortion' is synonymous and equivalent to 'miscarriage' in its primary meaning." Mills vs. Commonwealth, 13 Pa. 631, 633. "'Procuring an abortion,' in common language, means substantially the same as procuring a miscarriage." State vs. Crook, 16 Utah, 212. Bouvier in defining "miscarriage" says: "The expulsion of the ovum or embryo from the uterus within the first six weeks after conception. Between that time, and before the expiration of the sixth month, when the child may possibly live, it is termed abortion. When the delivery takes place soon after the sixth month, it is denominated premature labor. But the criminal act of destroying the fetus at any time before birth is termed, in law, procuring miscarriage. Chitty, Med. Jur., 410; 2 Dungl. Hum. Phys. 364." Therefore, it is clearly evident that "abortion" is "miscarriage," and the two words in law are synonymous.

In the case before the court the words used not only implied a criminal offense, but were the ordinary and usual designation of such crime even by the courts and text-writers. While it is true that many abortions might be attempted or even procured without the commission of any crime or offense whatever, yet a certain kind of attempted abortion is a criminal offense and punishable as such, and, a recognizance or bond requiring the principal to appear and answer unto the people for an attempt to procure an abortion, it must be understood that he was charged with the criminal offense.

From time immemorial abortion has been a crime, and by the judicial law of Moses, if mischief followed, the act was punishable with death. Exodus, c. xxi, vs. 22, 23. Under the common law, and likewise under the Colorado criminal procedure and practice, "abortion" is the technical and common name for a particular crime, as much so as rape or seduction are for others.

Hospital for Insane in Residence Neighborhood not Necessarily a Nuisance

The First Appellate Division of the Supreme Court of New York says that the complaint in the case of Heaton, et al., vs. Packer, et al., alleged that the plaintiffs owned and occupied lands suitable and valuable for residence purposes only, in a high-class residential portion of the city of New York, adjoining property owned by the defendants; that the defendants had purchased their lands referred to for the purpose of establishing, and were erecting and altering the buildings thereon for the purpose of using them for a hospital for the insane, and the housing, keeping and caring for a large number of insane persons. The complaint further set forth a large number of dangerous and disagreeable things which would occur from the establishing and maintaining of such a hospital for the insane, among others, that it would greatly depreciate the value of the plaintiff's property for residental purposes, and destroy the neighborhood as a residental section, and make it dangerous for women and children to go on the streets adjacent to the hospital, and make the residents nervous and ill from seeing unseemly sights and hearing unseemly noises. The relief asked was, not that the defendants should be restrained from the further erection and alteration of buildings, but that they should be restrained from using them for the purposes of maintaining a hospital for the insane. The defendants demurred to the complaint on the ground that it failed to state a cause of action. The court is of the opinion that the demurrer should have been sustained.

Hospitals and insane asylums are necessities, and, while they may be so conducted in certain localities as to become nuisances, they are not nuisances in and of themselves. If all should actually happen which the plaintiffs imagined would happen, possibly they might have good cause for complaint. The defendants' institution, however, might be so constructed and so managed that none of the evils which the plaintiffs apprehended would ever occur. While the establishment of a lunatic asylum in the plaintiffs' neighborhood might not be a desirable thing, still the evils apprehended did not necessarily arise from its maintenance, and were not inherent to it, like those coming from a slaughter house, for example.

The rule sanctioned by the authorities and the text-books with respect to the restraining of an apprehended nuisance by temporary or permanent injunction is that an injunction will not be granted unless it is apparent or inevitable that the proposed use of the property will actually result in a nuisance.

Evidence Where Insanity Is Defense

The Supreme Court of Florida says, in Johnson vs. State, that all persons are presumed to be sane; and when insanity at the time of committing an alleged offense is relied on as a defense, and the evidence for the state does not raise a reasonable doubt as to the sanity of the defendant when the offense was committed, it is incumbent on the defendant to submit evidence sufficient to raise a reasonable doubt of his guilt.

The Florida statute authorizing the examination of persons to be committed to the State Hospital for the Insane does not contemplate an inquiry into the responsibility of persons for crimes committed, and an adjudication of insanity preparatory to commitment to the hospital is not a proper matter for consideration in a trial for a crime.

Likewise, a certificate of the superintendent and physician of the State Hospital for the Insane that the defendant was in 1908 "discharged from the hospital by order of the examining board, he not being insane," was not admissible in evidence on the issue of insanity at the commission of the alleged offense in 1900.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

July 3

1 *The Tuberculo-Opsonic Index in its Relation to the Temperature Curve in Active Tuberculosis and its Value in Diagnosis in Suspected or Arrested Cases. H. M. King, Liberty, N. Y.
2 *Aneurism of the Thoracic Aorta. A. Abrams, San Francisco.
3 *Atresia of the Vagina. O. C. Smith and P. H. Waterman, Hartford, Conn.
4 Habitual Constipation. D. Roberts, Brooklyn, N. Y.
5 Science and Medicine with Special Reference to the Treatment of Syphilis and Gonorrhea. F. Baumann, Chicago.

1. **Tuberculo-Opsonic Index and Temperature Curve.**—King records observations and experiments on the relation of the temperature to the opsonic index in suspected or arrested tuberculosis and mixed infection. He asserts that the rises of temperature in tuberculosis indicate repeated autoinoculations of the patient. Rest inhibits these inoculations. Alternating negative and positive phases can be demonstrated corresponding inversely to the temperature rise and fall, and the temperature curve and index curve plotted out will give a diamond chart. The opsonic index has a most decided value in diagnosis of incipient tuberculosis, and as an indication for treatment in long-standing quiescent cases.

2. **Aneurism of Thoracic Aorta.**—Abrams repeats that the manipulation of definite vertebræ corresponds to the elicitation of definite reflexes. Indiscriminate handling may give opposite effects from those desired. Concussion of the four last dorsal vertebræ in succession by a series of sharp, vigorous blows will cause dilatation of the thoracic aorta in normal persons. Concussion of the spine of the seventh cervical vertebra will cause contraction of the thoracic aorta. If diminished resonance or dulness over the aorta, elicited by concussion of the vertebræ, exceeds the normal, the vessel either is dilated or is the site of an aneurism. A dull area in the upper thoracic region or back, if caused by aneurism of the thoracic aorta, will show a diminished area of dulness when the spine of the seventh vertebræ is concussed. Treatment by concussion of the vertebræ in aneurism has been found of value. A vibrator giving a percussion stroke is used. Concussion is made over layers of cotton attached by adhesive plaster.

3. **Atresia of the Vagina.**—Smith and Waterman record a case of atresia of the vagina in which there was an imperforate hymen, with no vagina except a fibrous cord, while the other genital organs were normal. The retained menstrual blood was contained in the dilated cervical canal. Operation was done by opening the abdomen to relieve the blood cyst, and later an attempt was made to prepare the way for the formation of an artificial vagina. This was probably a case of acquired atresia as a result of some intrauterine inflammation.

Boston Medical and Surgical Journal

June 24

6 *Fundamental Conceptions which should Govern Modern Obstetric Practice. E. Reynolds, Boston.
7 When to Interfere in Pregnancy and Labor. F. S. Newell, Boston.
8 Dangers to the Child in Operative Deliveries. S. A. Houghton, Brookline, Mass.
9 *Symptom-Complex of a Series of Exanthematous Diseases, or Is there a New Contagious Exanthem (concluded)? J. W. Watson, South Braintree, Mass.

July 1

10 Dental Hygiene: Its Real Significance. W. R. Woodbury, Boston.
11 *Resuscitation After Relative Death. A Physiologic and Clinical Review with Reports of Four Unsuccessful Attempts. C. R. Metcalf, Boston.
12 Semmelweis and his Work on Puerperal Sepsis. E. B. Young, Boston.
13 Principles of Therapeutics by Sense Culture. P. W. Goldsbury, Boston.
14 The Guaiac Test for Blood. R. W. King, Las Animas, Colo.
15 Schistosomiasis (Japonicum) in Hunan Province, China. O. T. Logan, Changteh, Hunan, China.
16 Analogies Between Malaria and Syphilis. W. H. Deaderick, Marianna, Ark.

6. **Modern Obstetric Practice.**—Reynolds is emphatic in asserting that most women are the better off for some sort of care in labor, but we must differentiate between the different classes of assistance. He estimates that 75 per cent. of all women are definitely the better for trained attendance in labor in minor ways: the care of the perineum, the hurrying of labor by proper management of the membranes, the occasional use of anesthesia, and the many small attentions which are the common property of the profession to-day. At least 60 per cent. of primiparæ have more favorable, less exhausting labors, and better convalescences, if the head is lifted over the perineum by the low application of forceps, and everybody knows that the percentage of stillbirths is less in cases treated in this way than after long perineal stages. It is also probable that from 10 to 15 per cent. or more of multiparæ are the better for having a short perineal stage under the use of low forceps. On the other hand, it is difficult, if not impossible, to estimate the percentage of all cases in which modern obstetrics advocates the use of high extractions, but the number of even these cases will certainly be much larger than the old-fashioned 5 per cent. pathologic labors which needed some attention. Much, he says, must depend on the operative ability of the obstetrician and on his capacity for planning out the campaign tentatively beforehand. When the consultant is called in after progress has failed, he is confronted by difficulties and dangers which ought never to have been allowed to arise, and whenever there is reasonable anticipation of difficulty and of a necessity for a consultant, he has a right to ask, and the patient has a right to demand, that he should be called in not after trouble is already present, but before the patient ever goes into labor. This does not mean that the general practitioner must yield up his obstetric practice. It does mean that when he has beforehand the instinct that the given case may not improbably prove a difficult one, he should not wait for blind luck in labor and the unfortunate results which are sure to attend it in a large percentage of such cases, but should avail himself of that mere suspicion to avoid the greater proportion of his difficulties and dangers by sufficiently careful examination beforehand, either by himself, if he feels equipped for it, or by a consultant, and further, that he should cultivate that instinct of coming danger by careful study of his pregnant cases. The use of a consultant during pregnancy should not, however, mean that the general practitioner necessarily turns over the case, but usually that he will enter on its care himself, fortified by consultation and with a better plan of management than he individually might have obtained for himself. It means, in other words, that he should treat his obstetric practice as he treats the rest of his business, availing himself of advice in all cases which he thinks may promise difficulty, and turning over to the specialist, or working in conjunction with him, only in those cases which he sees reason to believe will be the better for exceptional skill, and which it is not advisable for him to attend alone.

9. **New Contagious Exanthem.**—Watson discusses fully the clinical history of seventy-five cases of an exanthematous disease which he believes to be neither measles nor scarlet fever, but a possible "fifth disease." It has an incubation period of from 17 to 21 days. It is not contagious at all until peeling takes place; the desquamate is sometimes very profuse, but its germ is short lived. Patients are much more comfortably sick than they are with scarlet fever. Sickness does not usually last longer than three days when complications are absent. It has complications and sequelæ. Patient should be kept quiet for two weeks to prevent them. There is no chance of mixed infection in any of the cases. Some of the severest cases sprang from an initial mild case. Opinions of health officials (both state, town and nearby towns) vary as to the disease. It was generally regarded as very mild. Result: lax quarantine and spread of the disease. Several patients had already had scarlet fever, measles and German measles, but were not immune to this disease. The bacteriology, still incomplete, shows that the germs present have little vitality. It has no long-continued bad after-effects like scarlet fever. In the cases discussed there were no fatalities from the disease. The disease should be rigidly quarantined until desquamation ceases. It is not necessary to quarantine other members of the family, as the disease does not appear to be transmissible through the agency of a third person, nor is it necessary to quarantine so long as in scarlet fever.

11. **Resuscitation After Relative Death.**—Since Neihaus first employed cardiac massage on a patient in 1880, 39 other cases have been reported in which this or a similar measure has been tried. Metcalf adds 4 to this number. Of these 44 cases, 33 have been instances of syncope from anesthesia: 24 times chloroform, 6 times ether, once a mixture; 2 times the anesthetic has not been mentioned. Aside from the accidents of anesthesia, massage has been practiced 11 times, as follows: Pulmonary embolism, 1; suicide by hanging, 1; incision of postpharyngeal abscess, 1; diphtheria, 1; acute dilatation of the heart, 1; tracheal asphyxia, 2; traumatic injury of brain, 2; electric shock, 2. Of the 44 cases, 9 have met with complete success in that permanent recovery has been secured after relative death; 8 have been partly successful; the remaining 27 have been failures. Of the 9 recoveries, 4 have followed death from ether, 3 from chloroform, 2 from an anesthetic not specifically mentioned. Of the 8 temporary recoveries, 5 have followed death from chloroform, 1 from tracheal asphyxia, 2 from injury to the brain. It seems reasonable to conclude that in cases of relative death from an anesthetic, from asphyxia, from drowning or from electrocution, we should employ more than ordinary methods in attempting resuscitation. It is probable that Crile's method of thoracic pressure and intra-arterial infusion offers the greatest chance of success.

New York Medical Journal

July 3

17 *Complications of Malarial Fever. J. M. Swan, Philadelphia.
18 Is Seven Day Fever of Indian Ports only Sporadic Dengue? L. Rogers, Calcutta, India.
19 *Histologic Changes of the Spinal Cord in Pernicious Anemia Apropos of a Case with Diffuse Degeneration. A. Gordon, Philadelphia.
20 *Solid Carbon Dioxid in Lupus Erythematosus: A New and Successful Method of Treatment. W. S. Gottheil, New York.
21 *Treatment of High Dorsal Pott's Disease. W. E. Gallie, Toronto, Canada.
22 Bandages and Spectacles in Diseases of the Eye. N. B. Jenkins, New York.
23 Treatment of Diabetes as an Infectious Disease. A. King, Portland, Me.
24 Vaccine Therapy in Genitourinary Infection. E. G. Ballenger, Atlanta, Ga.

17. Abstracted in THE JOURNAL, May 1, 1908, p. 1448.

19. **Pernicious Anemia.**—The salient features from Gordon's case from a clinical standpoint are: The anemia, which developed after a profuse bleeding; the spinal cord symptoms, which gradually made their appearance two years later; finally the incidental influenza, which was followed by pulmonary tuberculosis. The prominent anatomic changes are a diffuse degeneration of the spinal cord, affecting not only the posterior columns, but also the lateral motor and sensory tracts and the anterior portions of the white substance of the cord.

When a comparison is drawn between the present case and those recorded by other observers similar and dissimilar points can be traced. Clinically, in the majority of cases the symptoms referable to a disease of the cord are slight. In a number of instances the histologic changes were found accidentally in patients who died from anemia. The clinical symptoms are therefore often overlooked. In Gordon's case the manifestations during life were marked. The cord symptoms developed gradually and began to make their appearance two years later after the onset of the profound anemia. The evolution of the symptoms was decidedly progressive. The relation between the pernicious anemia and the involvement of the spinal cord was evidently direct, the former commenced four years ago, gradually became more and more pronounced, and two years later sensory and motor symptoms, also sphincter manifestations, made their appearance. The course of the disease was chronic from the beginning to the end; at no time did any of the cord symptoms show an acute onset or acute development. As to the individual nervous symptoms, there was particularly notable syringomyelic dissociation in the upper extremities. Pain, heat and cold were not perceived by the patient, and in some areas heat was taken for cold, and *vice versa*. This phenomenon has not been observed in any of the cases reported, and anatomically it corresponds to a genuine involvement of Gowers' tract, more on one side than on the other.

20. **Solid Carbon Dioxid in Lupus Erythematosus.**—During the last two years Gottheil has employed only the solid carbon dioxid in treatment of lupus erythematosus, and has found it very effective. Being a solid body it can be whittled into any desired shape. The strength and amount of application can be gauged with the utmost nicety by varying the time and the pressure. Solid carbon dioxid, however, has further advantages. It is a cold cautery, and therefore an anesthetic cautery. This is a most important point. While other efficient cauterizing agents, almost without exception, are so painful that, save with patients of considerable fortitude, a local anesthetic at least is required when they are used, carbon dioxid can be employed on women and children without any trouble at all. The intense cold itself is a local anesthetic. The pain at the time of the application is trivial; a few minutes later there is a moderate amount of burning similar to that after a frostbite. This wears off entirely in an hour or two.

21. **Treatment of High Dorsal Pott's Disease.**—The plan of treatment described by Gallie was devised as a means of getting over the mechanical difficulty presented. The idea involved is the lengthening of the short upper lever by adding to it the cervical spine. Inasmuch as it is impossible to apply pressure on the front of the neck, owing to the presence of the larynx and vessels, the splint must be extended up to the head and preferably to the forehead and occiput. It consists of a plaster jacket extending from the pelvis to the head, leaving free the arms and exposing the face, ears and part of the chest. It conforms to the principles laid down for the treatment of tuberculosis of bone, in that it provides fixation to the parts, prevents increase of the deformity, and when applied with moderate hyperextension of the spine above and below the kyphosis causes the deformity to diminish.

The plan has been given a thorough trial extending over a period of two years, and so far results have been most gratifying. All the patients have shown marked improvement, the acute symptoms disappearing rapidly after the application of the first jacket. In no case has the deformity increased and in practically all there has been a diminution of the kyphosis. The general plan of management of these patients includes both recumbent and ambulatory treatment. Although the jacket gives excellent support to the spine, nevertheless the patient is kept in bed six months or more as an extra precaution. After that, if there is reasonable improvement, he is allowed up. The length of time he will need to wear the jacket has not been definitely determined as yet.

Lancet-Clinic, Cincinnati

June 19

25 *Conquest of the Tropics for the White Race. W. C. Gorgas, Ancon, Canal Zone.
26 Practical Suggestions for the Family Physician in the Early Recognition of Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Cal.
27 Treatment and Management of Strabismus. V. Ray, Cincinnati.
28 *Tachycardia from Cholecystitis with Section of Gall Bladder. B. Holmes, Chicago.

June 26

29 The Cutaneous Tuberculin Reaction. J. L. Tuechter, Cincinnati.
30 Disease of the Labyrinth: Report of a Case. K. L. Stoll, Cincinnati.
31 Psoriasis. J. V. Shoemaker, Philadelphia.

25. Published in THE JOURNAL, June 19, 1909, p. 1967.

28. **Tachycardia from Cholecystitis.**—Holmes reiterates his belief that drainage of the gall bladder is frequently indicated in myocarditis because tachycardia myocarditis is often due to a toxemia from cholecystitis with or without gallstones. The exact source of the toxic elements is not known to Holmes, but seems to originate in the gall-bladder wall or in changes in the bile due to contact with the excretions of the sick mucosa of the gall bladder. The toxins may be absorbed in the intestines or by the diseased mucosa of the gall bladder. The uniform enlargement of the lymph glands near the head of the pancreas to which the gall bladder is tributary seems to point to this possibility. The toxicity of a stone-carrying gall bladder seems less pronounced than that of the thickened gall bladder without stones. The end-result of the stoneless cholecystitis seems to be "brown atrophy" of the heart and

central arteriosclerosis followed by general peripheral arteriosclerosis. The drainage of the gall bladder gives immediate relief, and its long-continued drainage, six weeks or more, permanent betterment. The operation should be performed rapidly under local anesthesia or ether.

Virginia Medical Semi-Monthly, Richmond

June 11

32 Insanity: The Home Treatment of the Patient. P. C. Hunt, Washington, D. C.
33 Importance of Early Attention to Obstructive Respiration in Children. J. A. White, Richmond, Va.
34 *An Unusual Case of Puerperal Eclampsia. J. H. Hiden, Pungoteague, Va.
35 Gastric Ulcer. M. O. Burke, Richmond.
36 The Ureter—Anatomy and Pathology. B. M. Ricketts, Cincinnati.
37 Scarlet Fever. J. A. Owen, Turbeville, Va.
38 Change of Base. W. Waugh, Chicago.

June 25

39 Diagnosis and Treatment of the Early Stages of Hip Disease. A. R. Shands, Washington, D. C.
40 Extent and Importance of Venereal Diseases in the Social Body. F. T. Simpson, Hartford, Conn.
41 How should we Determine Errors of Refraction, and What is their Actual Relation to General Conditions. O. Wilkinson, Washington, D. C.
42 Tuberculous Hip-Joint Disease. L. Sexton, New Orleans.
43 Editorial Revision of Titles of Medical Papers. F. H. Garrison, Washington, D. C.

34. **An Unusual Case of Puerperal Eclampsia.**—Hiden's patient was only 12 years old, and when first seen was suffering severely from dropsy of face, hands, legs, feet and vulva. Diuresis and catharsis proved ineffective. Labor soon set in, was rapid, accompanied by seventeen convulsions, and terminated with the patient in coma. The immediate treatment consisted of the administration of morphin, veratrum viride, calomel, jalap, bromid of potash and chloral hydrate, pushed to the limit of tolerance. After the completion of delivery, the patient was soon put into a hot, wet pack and steamed for three hours; and after four hours' interval, the hot pack was again used. The patient continued in coma for about thirty-six hours, but there was great diminution in the general edema, and it was evident that she was improving under the treatment. After consciousness was restored the case progressed to a rapid recovery.

Medical Fortnightly, St. Louis

June 25

44 Squint: An Appeal to the Family Consultant. E. E. Clark, Danville.
45 History of Scientific Medicine, What it has Done and Does To-day for Medicine and Surgery. L. H. Warner, Brooklyn.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

June

46 Addresses Delivered at Dedication of New Library Building of the Medical and Chirurgical Faculty of Maryland.

Chicago Medical Recorder

June

47 Brain Surgery. C. Wagner, Chicago.
48 *Diagnostics of "Traumatic" Hernia. W. H. Allport, Chicago.
49 Abruptio Placentæ—Premature Detachment of the Normally Implanted Placenta. F. O. Bowe, Chicago.
50 The Enema—Its Place in the Treatment of Gastrointestinal Diseases. C. J. Drueck, Chicago.
51 Ocular and Cutaneous Tuberculin Diagnosis. M. Biesenthal, Chicago.
52 Eye and Ear Defects of Exceptional Children. T. Faith, Chicago.
53 The Graduate Nurse Versus the Patient of Moderate Income. F. Allport, Chicago.

48 **Traumatic Hernia.**—According to Allport, all examinations of cases of alleged traumatic hernia should be based on a consideration of: 1. Is there a protrusion which was reasonably certain to have been primary and local at the time of the accident? 2. Was there a trauma—in the sense of an unusual or unlawful use of force—inflicted on the person examined? It should be possible for an examining surgeon unerringly to classify the following forms of hernia: (1) The recent hernia accompanied by objective signs of trauma; (2) the recently injured, but ancient hernia; (3) the ancient uninjured hernia, masquerading as a recent result of trauma. It is always difficult, and often impossible, without operation, to differentiate between a small, quiet, old, thin-sacked hernia fraudulently presented, and a genuine recent hernia, which has thrust itself for the first time into a funicular process so large that it has admitted the bowel without objective evidence of trauma. Especially difficult is this when the patient is examined some time after the accident.

Allport directs special attention to the following points: 1. The value of a preliminary physical examination of all employés in mechanical occupations, with a carefully made and preserved record of the same. This examination has been too largely overlooked by employers. 2. When the etiologic diagnosis of hernia is at all in doubt, the surgeon should have the option of offering to the patient the benefit of a radical curative herniotomy.

American Journal of Urology, New York

June

54 Principles of the Modern Treatment of Gonorrhea. J. L. Boehm, St. Louis.
55 Hair-pin in the Bladder, with Removal by the Cystoscope. L. W. Bremerman, Chicago.
56 Epididymotomy in Gonorrheal Epididymitis. L. Gross, San Francisco.
57 How to Aborte Acute Gonorrhea. W. L. Champion, Atlanta, Ga.

Journal Indiana State Medical Association, Fort Wayne

June

58 *Surgery of the Thyroid, with Special Reference to the Psychic Factor in Graves' Disease. G. W. Crile, Cleveland.
59 Uses and Abuses of Gastrojejunostomy. J. R. Eastman, Indianapolis.
60 *What to Eat in Gastric Ulcer: A Milk-Free Diet. F. W. Foxworthy, Indianapolis.
61 Case of Gastric Ulcer with Perforation and Death. J. A. Work, Elkhart.
62 Sketches of Medical History of Indiana (continued). G. W. H. Kemper, Muncie.
63 Gleanings from Obstetrics in General Practice. A. C. McDonald, Warsaw.
64 Value of Split Proteids in Infant Feeding. C. E. Hansel, South Bend.

58. **Surgery of the Thyroid.**—In Crile's series of 253 operations on the thyroid, 4 were performed for infections, all ending in abscess and requiring incision and drainage; two of the patients were in the course of typhoid and gave pure cultures of typhoid bacilli; one case followed an operation for extrauterine pregnancy; and one was a sequel of influenza. These were treated as abscesses elsewhere and all the patients recovered. There were 14 cases of malignant tumors, 9 carcinomata and 5 sarcomata. Of these, one patient with carcinoma and one with sarcoma passed the three-year period without recurrence; the remainder died of the disease. Among the operations for benign tumors, such as cysts and adenomata, and for plain goiters, results were as satisfactory as operations for benign pelvic tumors, interval appendicitis, and uncomplicated gall-bladder cases. There was but a single death in the entire series, and in the last 120 there was no fatality.

The special points of operative importance emphasized by Crile are: That the anesthetic should be given by a special anesthetizer; that the anesthetic should be preceded by a hypodermic of atropin to control the salivary and the buccal secretions; that in cases of compression of the trachea with obstructed respiration, morphin-cocain anesthesia is the safest; that the least scar and the best exposure are secured by the low collar incision; that the divided muscles should be sutured; that the gland should be handled as little as possible; that the dissection should be made in a clear field with perfect hemostasis; that the enucleation rather than excision should be made; that a strip of glandular tissue at the upper and lower pole and along the posterior border should be left, especially if a bilateral excision is made, ensuring the safety of the parathyroids; that the arteries should be secured early close to the gland itself so as not to cut off the blood supply of the parathyroids; that these arteries should be tied with linen or silk and not catgut, as the latter may slip; that the inferior laryngeal is best protected, not by exposing it, but by carrying the incision through tissues in which it does not lie; and that the best aid in the prevention of hemorrhage consists in placing the patient in the reverse Trendelenburg posture, thereby lowering the pressure in the veins. The wounds are always drained for from 48 to 72 hours.

Goiter has a rather definite geographic distribution. For the United States, it is most prevalent in the Great Lakes basin and the Columbia River Valley. For all practical purposes, goiters may be divided into three great classes, the first comprising benign tumors, hypertrophies and degenerations; the

second Graves' disease—a true hyperplasia; and, third, neoplasms. Colloid goiters and benign tumors in experienced hands have about the same mortality following excision as that of interval appendicostomy. Operation is indicated for cosmetic reasons, for the relief of pressure symptoms, and when beginning malignancy is suspected. From 6 to 10 per cent. of all goiters that come to operation are malignant. Graves' disease should be recognized early and medical treatment faithfully tried. If, after careful treatment, the relapses grow more severe, excision of the gland should be done. If good judgment is used in selecting the stage for operation, the mortality should be but slight, probably 2 or 3 per cent., and a clinical course may then be completed under the care of a physician.

60. **Milk-Free Diet in Gastric Ulcer.**—After the usual methods employed in the treatment of gastric ulcer had failed, Foxworthy gave a milk-free diet in a case of two years' standing and with entire success. The white of one egg was beaten up in a glass of cold water and sipped slowly; this feeding was given every three hours, and each day the dose was increased by one egg, so that at the end of two weeks the patient was getting the whites of twenty eggs each day—that is, the whites of four eggs to a glass of water every three hours. The pain gradually disappeared, she was able to lie on her right side, which was not possible before, no vomiting occurred, and marked mental improvement was noticed. The only medical treatment used was lavage with one pint of warm water, in which ½ ounce of sodium bicarbonate had been dissolved. One-half of this amount was allowed to remain in the stomach. Before each feeding of albumin water, she was given one-half teaspoonful dry on the tongue, of the following mixture:

R	gm.	or c.c.
Magnesiæ ustæ Sodii carbonatis Potassii carbonatis, ãã	5	or gr. lxxv
Sacchari lactis	25	3vj

On the fourteenth day, a meat juice preparation was added to the diet—and then gradually meat, eggs, vegetables and bread. On the forty-second day the patient was well nourished, enjoyed her food and had no pain for several weeks, no eructations of gas, the test meal showed normal acidity, and there was no tenderness over the abdomen, lavage made three hours after a meal found the stomach absolutely empty, and no symptoms of ulcer could be found.

Montreal Medical Journal

June

65 Life. J. G. Adami, Montreal.
66 Use of Radium in Paris. G. E. Armstrong, Montreal.
67 The Essential Character of Hysteria. T. A. Williams, Washington, D. C.
68 *Canadian Leprosy. C. M. Kelly, Montreal.
69 Value of the Roentgen-Ray in the Diagnosis of Renal and Ureteral Calculus. F. M. Auld, Montreal.
70 Medicine in Canada. M. Charlton.

68. **History of Leprosy in Canada.**—Kelly found that although the early history of leprosy in Canada is somewhat vague, it is established that the first cases appeared in 1816 among the Acadian people of Tracadie, N. B. The two first cases were Acadian girls born of Acadian parents fifty years after immigration from France had ceased, so it is rather doubtful if the bacilli were imported from that source. The late superintendent of the Lazaretto at Tracadie, Dr. Smith, held to the opinion that the disease came not from Normandy but from Norway, not from colonists, but from sailors shipwrecked on the shore of Bay Chaleur. Two sailors spent the entire winter with the family in which the first cases of leprosy appeared in the following summer. The disease was in existence for upwards of thirty years before identified as such. A hospital was founded and four years thereafter it was burned by the lepers themselves, and the people treated the discovery of the disease in their midst with the utmost indifference. The present building equipped after the manner of a modern hospital, was erected in 1896 by the federal government which assumes control over leprosy in Canada. There are now eighteen known cases of leprosy in Canada. Of these thirteen are probably traceable to the original infection, the remaining five being foreigners. Of these five, two, mother and son, were discovered in Nova Scotia, having come from the West Indies; Manitoba furnishes two, Icelanders by birth, and the fifth is a Doukhobor boy from the Northwest. In the treatment, prevention takes first place. Of therapeutic agents, Chaulmoogra oil is used internally and checks the acute symptoms; externally it is employed as a dressing and promotes the healing of leprous ulcers.

Journal of Medical Research, Boston

June

71 *Studies on Meningitis. W. J. Elser, and F. M. Huntoon, New York.

71. **Meningitis.**—The studies recorded at length in this article were carried out under the commission for the investigation of cerebrospinal meningitis appointed by the Board of Health of New York City in 1905. In view of the controversy then existing in regard to the characters of the meningococcus, it was deemed advisable to study a comparatively large number of strains. The results of this study indicate that while the meningococcus can not always be recognized positively on ordinary morphologic and cultural ground, yet its identification for practical purposes is quite easy; furthermore, that the cultural characters of different meningococcus strains are remarkably uniform; and for all that, the meningococcus may be differentiated from other Gram negative cocci by means of fermentation tests. Careful special investigation led the authors to conclude that the meningococcus is always Gram-negative, results to the contrary always, in all probability, being due to the admixture of different Gram-positive cocci. The highly variable agglutinability of different strains of meningococcus even by the same immune serum deprives agglutination of much diagnostic value. Nearly half of the meningococcus strains studied were found to be relatively inagglutinable. At the same time, the agglutinogenic power of the meningococcus also varies; in some cases immune serums were obtained that agglutinated homologous strains in dilution of 1 to 25,000. Agglutination tests revealed that there exists a group relationship between the meningococcus and the gonococcus. Serum from cases of epidemic meningitis may contain specific agglutinins in testing for which it is necessary to carry out control tests with normal serum. Unfortunately, the agglutinin is the only antibody for meningococcus that the authors studied.

In 210 cases of meningitis a bacteriologic examination of the spinal fluid during life established a positive diagnosis in 194 instances (92.4 per cent.). Gram-negative cocci not identical with meningococci were encountered, but rarely in the spinal fluid, and for practical purposes the detection in smears from this fluid of a Gram-negative coccus with the morphology and staining properties of the meningococcus is sufficient to establish a diagnosis, if the examination is made shortly after the fluid has been withdrawn, and if the cells present in the fluid indicate the existence of an acute meningitis. The diagnosis is further strengthened if the coccus is intracellular. In the case of Gram-negative cocci from the nasopharynx and other parts not connected with the central nervous system, all the different tests are necessary in order to reach a reliable conclusion.

As regards the mode of dissemination and origin of epidemic meningitis, Elser and Huntoon conclude that the meningococcus is transmitted directly from individual to individual. Authentic instances of so-called indirect transmission are not recorded and would not be in harmony with the great sensitiveness of the meningococcus to drying. Meningococcus carriers play the most important part in the spread of this disease, and in an epidemic their number exceeds the number of those actually sick with the disease. The occurrence of adult carriers and the fact that most individuals are naturally immune to meningococcus infection explains many of the peculiarities of the epidemics. Meningococci gain entrance by way of the respiratory passages, as indicated by their early appearance there. While the path followed by the meningococcus to the brain is not definitely traced, the evidence at hand appears to favor a hematogenous route, the localization taking place in the leptomeninx on account of a special affinity of the meningococcus for that structure. It appears that only one other bacterium may cause epidemics of cerebrospinal meningitis, viz., the encapsulated streptococcus of Bonome,

which by many is regarded as a Streptococcus mucosus. The pneumococcus, on the other hand, does not cause true epidemics of meningitis.

Texas State Journal of Medicine, Fort Worth

June

72 The Doctor's Duty as a Public Educator. H. W. Cummings, Hearne, Tex.

Wisconsin Medical Journal, Milwaukee

June

73 *Open-Air Treatment of Pneumonia. A. J. Patek, Milwaukee.
74 Gonorrheal Endocarditis. H. Hanson, Milwaukee.
75 Indications for Extirpation of the Lachrymal Sac. S. E. Wright, Marinette.
76 Present Status of Medical Expert Testimony on Insanity. N. Smilie, Philadelphia.
77 Ophthalmia Neonatorum. S. R. Boyce, Madison.

73. Abstracted in THE JOURNAL, Aug. 22, 1908, p. 793.

University of Pennsylvania Medical Bulletin, Philadelphia

June

78 Relation of the Thyroid and Adrenals to Pancreatic Glycosuria. C. H. Stone, Philadelphia.
79 *Experimental Production of Acute Toxic Ulcer of Stomach. M. E. Rehfuss, Philadelphia.
80 Transplantation of the Ureters into the Gastrointestinal Tract. C. R. Steinke, Philadelphia.
81 Etiology of Papilledema (Choked Disc). C. Coover, Philadelphia.
82 *Effect of Atoxyl on the Eye. B. W. Key, Philadelphia.
83 Moot Points in Diagnosis and Treatment of Ectopic Gestation. E. S. Sledge, Philadelphia.
84 The Parathyroid Glands. J. L. Herman and W. B. Harvey, Philadelphia.
85 Maternal Milk as an Immunizing Agent to the Nursling. L. T. de M. Sajous, Philadelphia.
86 Occurrence of Acetonuria Following Anesthesia. R. N. Hamblen, Philadelphia.
87 Removal of Gallstones Coincident to Other Abdominal and Pelvic Operations. A. F. Jackson, Philadelphia.

79. **Experimental Production of Gastric Ulcer of Stomach.**—Rehfuss found that marked intoxication is the most important factor in the production of ulcer, and is the guide for the dose of poison, no matter what poison is used, which shall be given with sufficient frequency to insure a result. The dose must also vary with the weight of the animal. Observing such conditions, he was able to produce ulcer in 35 out of 41 animals injected with venom alone, or in a little over 85 per cent. of the cases. This ulcer seemed independent of agony, but usually was worse in direct proportion to the degree of intoxication manifested by the animal. The same underlying cause existed in all these cases, inasmuch as the ulceration and hemorrhage differed only quantitatively. The only factor which seemed essential was the condition of "marked intoxication." Rehfuss, therefore, tried various substances, poisonous in nature, injecting with sufficient frequency to secure such an effect for several hours always with the same result.

For the purpose of determining whether digestion or hemorrhage is the primary factor, he introduced 14 c.c. of a 4 per cent. solution of sodium bicarbonate into the stomach tube. Later, to bar out the effect of the passage of this fluid into the duodenum, two injections of 10 c.c. each were given, one hour apart. He found that alkali inhibits and in the great majority of cases actually prevents the formation of ulcer. Thus, in thirty animals so injected, only six gave ulcer—about 20 per cent.—and in four cases these ulcers were single. In the controls, 20 animals placed under similar conditions, over 80 per cent. developed ulcer, and in the majority of these the ulcers were multiple; a 2 per cent. sodium bicarbonate solution was not so efficacious, and failed to exhibit the same control over the lesions, although it seemed to inhibit their formation. These experiments make it highly probable that digestion is the primary step in the formation of these ulcers. As to the cause of primary digestion, his experiments do not permit him to make any definite statement. He is inclined to believe that the process is due to malnutrition of certain areas of the gastric mucosa, and that this malnutrition is brought about by the slowing of the circulation. The fact that animals which are in a state of collapse are especially liable to ulcer also would favor this interpretation. In other instances, injurious substances may pass directly from the capillaries into the surrounding mucosa, lead to interference with the vital processes of these cells, and thus lower their resistance to peptic digestion.

82. **Effect of Atoxyl in the Eye.**—Key concludes that atoxyl no doubt is of distinct therapeutic value, but that it has a treacherous toxic action in the organism. The most interesting and prominent effect of its toxic action is manifested by the production of amblyopia, the result of optic nerve atrophy, with primary involvement of the retina, though in certain cases central lesions, shown experimentally and apparent clinically, are very suggestive.

Atlanta Journal-Record of Medicine

June

88 Mouth and Tongue Disease. M. B. Hutchins, Atlanta.
89 Vaccines in Diagnosis and Treatment of Tuberculosis. E. C. Thrash, Atlanta.
90 Address of Welcome to the Medical Association of Georgia. T. E. Ryals, Macon.
91 Treatment of Typhoid. J. B. Baird, Atlanta.
92 Tuberculosis. J. E. Summerfield, Atlanta.
93 Celiac Parotitis. H. J. Williams, Macon, Ga.
94 Squint and the Importance of its Early Correction. H. M. Lokey, Atlanta.

Journal of Cutaneous Diseases, New York

June

95 Case of Systemic Actinomycosis. H. R. Varney, Detroit.
96 Multiple Dactylitis, Syphilitica (Phalangitis Heredo-Syphyllitica, Hochsinger) in an Infant. H. G. Klotz, New York.
97 Pemphigus—Death in Collapse. H. G. Klotz, New York.
98 Fulguration—The Local Application of a Current of High-Frequency by Means of a Pointed Metallic Electrode—Its Use in Dermatology. G. M. MacKee, New York.

Annals of Surgery, Philadelphia

June

99 *Surgical Treatment of Locomotor Ataxia. Le G. N. Denslow, New York.
100 Traumatic Asphyxia. D. L. Despard, Philadelphia.
101 Stasis Cyanosis Following an Epileptic Seizure, Simulating Traumatic Asphyxia. E. G. Alexander, Philadelphia.
102 *Ligation of the External Carotids. A. L. Fisk, New York.
103 Cystitis and Ulceration of Bladder in Women. J. B. Shober, Philadelphia.
104 *Tuberculosis of the Bladder. G. MacGowan, Los Angeles, Cal.
105 *Surgical Treatment of Tuberculosis of the Epididymis and Testicle. C. G. Cumston, Boston.
106 Removal of Gauze Sponge from the Scrotum, Two and One-half Years After Operation for Double Inguinal Hernia. H. L. Kretschmer, Chicago.
107 Bone Transference. E. A. Codman, Boston.
108 Report of Saturday Surgical Clinics for Students. J. B. Deaver, Philadelphia.
109 The Volunteer Military Surgeon. W. G. LeBoutillier, New York.

99. **Locomotor Ataxia.**—Denslow insists that there has been much misconception as to the claims made by him regarding his treatment for tabes. He says any permanent pathologic changes that may have taken place in the spinal column or other portions of the nervous system are, of course, irreparable, and in that sense a cure is out of the question; but where a train of symptoms is undoubtedly due to a continued irritation of these lesions, and this irritation is stopped by removal of the causal peripheral irritation to the extent of relieving the patient permanently of the train of symptoms, such as pain, incontinence of urine and feces, balance, gait and sensations restored, it would seem as if, so far as the patient is concerned, he has obtained what he sought—relief from his troubles. Practically, he is cured; pathologically, he is not. He reports a further series of cases, 17 in number, which came to him during October, November, and December, 1908. Of the eight cases sent to him by Dr. Starr, the good results of seven of which were verified by Drs. Starr and Cunningham, six are doing well, all being able to work and attend to their usual vocations; one has never reported, and one has been lost sight of. He is more firmly convinced than ever that his conclusions previously stated are correct.

102. **Ligation of External Carotids.**—Fisk reports four cases of ligation of the external carotids for cancerous disease of the neck and face, and concludes from his experience and a review of the literature that ligation of the external carotid more thoroughly controls the hemorrhage than does ligation of the common carotid; that there is less probability of secondary hemorrhage, and that there is no fear of brain complications. He considers such ligation a safe and wise procedure in operations on the neck and face.

104. **Tuberculosis of the Bladder.**—MacGowan reports three cases of mushroom-like growths obstructing the outlet of the bladder, and springing up on a tuberculous focus. He discusses, in general, the treatment of tuberculosis of the urinary

tract. The cardinal indications are: (1) Estimation of damage already done; (2) relief of pain and hemorrhage; (3) lessening of urinary frequency; (4) prevention of progress. In no case should dependence be placed on local treatment alone, but use must be made of constitutional remedies, urinary antiseptics and analgetics. The happy effects of iodin are often as noticeable in securing the cure of localized tuberculous lesions as they are in syphilis. The cautious use of mercury by the mouth, by inunction of colloidal mercurial ointment, or by intramuscular injections of the salicylate is of assistance. Urinary antiseptics are valuable in combating bacteriuria, but their dose must be regulated to avoid irritation. Of analgetics, morphin should be avoided as long as possible; codein, in full doses, coal-tar preparations and crystallized hyoscyamin are of value. Methylene blue certainly has a calmative influence on the cystospasm. Suppositories are useful. Instillation of small quantities of corrosive sublimate in the bladder (Guyon's method) have given MacGowan excellent results, the first two weeks demonstrating if they will be of any use. MacGowan has seen many striking illustrations of the harmfulness of tuberculin in too great and too frequent injections, but he can not praise too highly its value when used intelligently as an aid in effecting a cure. He differs with many who deprecate surgical interference in vesical tuberculosis.

105. Published in the *Clinical Journal*, London, Feb. 17, 1909.

Journal Missouri State Medical Association, St. Louis

June

110 The State's Duty in the Conservation of Public Health. G. McConnell, St. Louis.
111 The Ocular Reaction to Tuberculin. A. W. McAlester, Jr., Kansas City.
112 Suggestive Form of Government Control of the Public Health. J. H. Morroway, Ridgeway, Mo.
113 Care of the Breasts and Nipples During Pregnancy and the Puerperium. P. H. Swahlen, St. Louis.
114 Tinea Sycosis. T. F. Lockwood, Butler.
115 Acute Inflammation of the Mucous Membranes of the Upper Air Passages. W. K. Statler, Oakridge.
116 Importance of Early Attention in all Cases of Rectal Disease. J. C. Minor, Chillicothe.
117 Our County Medical Society. J. W. Clark, Joplin.

American Journal of Surgery, Philadelphia

June

118 Acute Pancreatitis: Symptoms and Treatment. J. F. Erdmann, New York.
119 Electrotherapeutics in Diseases of the Genitourinary Tract. F. H. Bermingham, Brooklyn, N. Y.
120 Conservative Treatment of Tuberculosis Joints. H. A. Pingree, Portland, Me.
121 Operative Treatment of Saphenous Insufficiency. J. S. Lewis, New York.
122 Treatment of Talipes Equinus Varus by Plaster-of-Paris. E. L. Barnett, New York.
123 Practical Deductions Regarding Weak Foot. C. R. Keppler, New York.
124 *The Versatile Omentum. F. A. Dunsmoor, Minneapolis.
125 Case of Congenital Sacral Tumor. W. F. Campbell, New York.
126 Surgical Treatment of Epilepsy. G. F. Shiels, New York.

124. Abstracted in THE JOURNAL, Jan. 30, 1909, p. 415.

Journal of the Michigan State Medical Society, Detroit

June

127 Burns of the Eye and its Appendages. V. A. Chapman, Muskegon.
128 Recurrent Vomiting of Children. H. M. Rich, Detroit.
129 *Etiology and Pathology of the Toxemias of Pregnancy. W. H. Morley, Detroit.
130 *Toxemias of Pregnancy—Diagnosis and Treatment. H. E. Randall, Lapeer, Mich.
131 Toxemias of Pregnancy—Eclampsia. E. Elliott, Chesaning.
132 Comforts and Minor Necessities in Management of Obstetric Cases. C. H. Judd, Detroit.
133 An Interesting Brain Injury. H. B. Garner, Traverse City.

129 and 130. Abstracted in THE JOURNAL, Aug. 29, 1908, p. 787.

Long Island Medical Journal, Brooklyn

June

134 Organized Campaign against Tuberculosis. L. Farrand, New York.
135 What the City is Doing and Proposes to do with the Tuberculosis Problem. R. W. Hebberd, New York.
136 Tuberculosis Work in the Borough of Brooklyn. J. Jenkins, Brooklyn.
137 Treatment of Ectopic Gestation in its Early Stages. H. C. Keenan, Brooklyn.
138 *When shall Gastric Ulcer be Treated Surgically? R. W. Westbrook, Brooklyn.

138. **When Shall Gastric Ulcer be Treated Surgically?**—Westbrook answers this query as follows: In cases in which the symptoms and physical signs point to retention of food contents due to pyloric obstruction, dilatation of the stomach, hour-glass contraction, adhesions, etc.; in cases of perforation; in cases of severe hemorrhage; in cases of recurring hemorrhages, which produce secondary anemia; in cases which culminate in hemorrhage after dyspeptic symptoms over a long period; in chronic ulcer which resists medical cure for a period of two to four months. All the early uncomplicated cases of ulcer may be considered to be amenable to medical treatment.

The Journal of the Kansas Medical Society, Kansas City

June

139 Post-Diphtheritic Complications and Their Prophylactic Treatment. L. W. Shannon, Hiawatha, Kan.
140 Puerperal Eclampsia. J. H. Langworthy, Leavenworth, Kan.
141 Uterine Hemorrhage with Reference to the Menopause and Uterine Cancer. J. C. Shaw, Holton, Kan.
142 Case of Gastric Ulcer; Gastrojejunostomy. R. B. Gibb, Pittsburg, Kan.

Journal Medical Society of New Jersey, Orange

June

143 The Pancreas as a Possible Field for Surgery. E. M. Foote, New York.
144 The Cancer Problem in New Jersey. J. A. McGlinn, Philadelphia.
145 Needs of the Medical Profession in Essex County. W. P. Eagleton, Newark.
146 The Physician in Politics. W. E. Ramsay, Perth Amboy.
147 The Meddlesome Doctor. J. W. Bradshaw, Orange.

Therapeutic Gazette, Detroit

June

148 *Prevention of Tropical Abscess of the Liver by Treatment of the Presuppurative Stage with Ipecacuanha. L. Rogers, Calcutta, India.
149 *Use of the Oil of Cloves (Oleum Caryophylli) in Pulmonary Tuberculosis. H. R. M. Landis and H. J. Hartz, Philadelphia.
150 *Apomorphin as a Hypnotic. C. J. Douglas, Dorchester, Mass.
151 Facts as to Chloroform and Delayed Chloroform Poisoning. T. S. Githens, Philadelphia.
152 Cuguillere's Serum in Bone Tuberculosis. C. H. Muschlitz, Philadelphia.

148. **Prevention of Tropical Abscess of Liver.**—Rogers has found ipecac of great value in the treatment of the hepatic complications of amebic dysentery—preventing suppuration if given in the presuppurative stage and preventing recurrences if given after surgical treatment. For the last three years it has been usual to continue full doses of 20 to 30 grains once a day for one or two weeks after the temperature fell to normal, and in smaller doses for some time longer in the more acute cases. Full doses are required, and as much as 60 grains at a time have been administered. However, full effects can be obtained with half that amount, while in feeble patients or women 20 grains will usually suffice. In one case only 5 grain doses were given by mistake, and a very acute hepatitis subsided completely, although much more slowly than is usual under fuller doses in other cases. The usual method is to give it as a powder twenty minutes after a dose of tincture of opium, or better, 20 grains of chloral hydrate, no food or drink being given for several hours before and after, the patient being kept as quiet as possible and instructed to try not to vomit. A method used with success in the Philippine Islands, and also recently in Calcutta, is to make fresh 5-grain pills of ipecacuanha, and brush them over with a thick coating of melted salol, which does not readily dissolve in the stomach. Rogers' plan is to put up the powdered drug in 5-grain doses in keratinized capsules, which do not dissolve in the stomach, but carry the drug into the bowel, where its action is required. This method has done much to get over the objections to the treatment.

149. **Oil of Cloves in Pulmonary Tuberculosis.**—Of the fifty cases in which Landis and Hartz employed oil of cloves, thirty had a severe cough and expectorated large quantities of sputum, while in the remaining twenty the amount of sputum was slight and the cough for the most part was unproductive. Twenty-four of the thirty patients with large amounts of sputum were distinctly benefited. Those with an unproductive cough were not helped, and as a rule were made worse by the drug. Given internally, the oil of cloves may be administered in the dose of from 3 to 5 minims in half a glass of milk or in capsules. The following combination gave the best results:

R	gm. or c.c.	
Olei caryophylli		
Syrupi senega, āā	8	fl.3ij
Extracti glycyrrhizæ	45	fl.3iss
Aquæ destillatæ, q. s. ad	90	fl.3iij

M. Sig.: Teaspoonful three times daily after meals.

While the relief given to the cough might be attributed to the anesthetic action of the drug in the upper air passages, it is to be noted that the same effect is produced when the drug is given hypodermically. Furthermore, an irritating cough unattended with much sputum, instead of being improved, seems to be made worse. The abatement of the cough is probably simply secondary to the diminution in the quantity of sputum, which requires less effort for its removal. Inasmuch as no ill effects follow the diminished secretion of oil of cloves probably has an inhibitory action on the secreting membrane of the cavities rather than causing a locking up of the material, as does opium.

150. **Apomorphin as a Hypnotic.**—Douglas again calls attention to the usefulness of apomorphin as a hypnotic when given hypodermically in 1/30 of a grain dose, although this is not a fixed amount. Individual susceptibility to the action of apomorphin varies somewhat. If it is desired to avoid nausea the dose must be as near to the emetic dose as possible without quite reaching it. If it is a little too small it produces no effect whatever, even if repeatedly administered every thirty minutes, as it has no cumulative action. On the other hand, if the dose is a little too large it produces emesis.

Buffalo Medical Journal

June

153 The Next Twenty-Five Years in Surgery. R. Park, Buffalo.
154 Radical Operation for Cure of Incipient Hip-Joint Disease. H. C. Rooth, Buffalo.
155 The International Congress of Surgeons, 1908. E. R. McGuire, Buffalo.
156 Effect of High-Frequency Currents on Blood Pressure, Demonstration of the D'Arsonval Cage. W. L. Conklin, Dansville, N. Y.
157 Blastomycosis in New York State. H. C. Baum, Syracuse, N. Y.

The Ohio State Medical Journal, Columbus

June 15

158 Colopexy and Other Surgical Procedures Indicated in Treatment of Constipation (Obstipation) Due to Intestinal Ptosis. S. G. Gant, New York City.
159 Isoagglutinins and Isohemolysins. W. M. Moss, Baltimore.
160 The Danger of Infection in Tuberculosis from Bovine Sources, with Special Reference to the Situation in Ohio. A. B. Smith, Wilmington.
161 Ectopic Gestation. F. T. Marr, Chillicothe.
162 Serous or Posterior Basic Meningitis; Its Early Recognition and Treatment. J. P. West, Bellaire.
163 Extirpation of Lachrymal Sac—Indications for and Technic of Operation. C. S. Means, Columbus.
164 Bacteriology of the Conjunctiva. E. M. Weaver, Akron.

Northwest Medicine, Seattle

June

165 Treatment of Acute and Chronic Inflammation with Hyperemia. E. O. Jones, Seattle, Wash.
166 Diagnosis of Incipient Pulmonary Tuberculosis. H. M. Page, Freewater, Ore.
167 Accidental Hemorrhage. R. J. O'Shea, Seattle, Wash.
168 Present Status of the *Spirochæta Pallida*. A. M. MacWhinnie, Seattle, Wash.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

June 19

1 Prominent Motive in Murder. T. C. Shaw.
2 *Theories as to Mode of Production of Grocco's Paravertebral Triangle of Dulness. W. Ewart.
3 Pancreatic Glycosuria Ten Years After Typhoid. P. J. Cammidge.
4 Relation of Acidosis to the Carbon Dioxid of the Blood in Diabetic Coma. A. P. Beddard, M. S. Pembrey and E. I. Spriggs.
5 The Operation of Cardiolysis. F. J. Poynton and W. Trotter.
6 Proposed International Standard for the Physiologic Assay of the Heart Tonics of the Digitalis Series. E. M. Houghton.
7 Rupture of the Spleen; Removal; Recovery. T. S. Lukis.
8 *Treatment of Chronic Suppuration of the Maxillary Antrum: An Operation and New Instruments. J. Donelan.
9 Aphasia Succeeded by Jacksonian Epilepsy; Operation; Recovery. W. Alexander.
10 *Catalepsy Occurring in a Boy Aged 15. D. E. Core.
11 *Removal of Superfluous Hairs by Improved Methods. A. H. Pirie.
12 *Simple Method of Diagnosis in Paralysis of the Extrinsic Muscle of the Eye. A. MacNab.

2. **Grocco's Paravertebral Triangle of Dulness.**—A principle of fundamental importance to clinicians in their study of intrapleural events is the fact that a lung laterally compressed by fluid retreats into the spinal groove by virtue of the posterior position of the pulmonary root above, and of the attachment below of the posterior edge of the lung by means of the ligamentum latum pulmonis. Ewart believes that this recession and this attachment govern in effusion the persistence of the spinal and vertebral resonance for some distance below the upper level of the fluid, and the production of the S-shaped outline of dulness of Damoiseau. He concludes, therefore, that Grocco's paravertebral thoracic triangle of dulness, due to fluid free in the pleura, is rectilinear, not curved; and in other respects also it agrees with the description of it given by Grocco. It is also produced by fluid collections in the abdomen; its base is then broader than in pleural cases. In the latter, neither its width nor its shape vary appreciably, but only its height; this rises exactly to the level reached by the effusion itself. In bilateral cases of pleural effusion a Grocco's triangle can be made out on both sides, in spite of the dulnesses due to the two effusions. As the effusions are seldom quite equal, two unequal Grocco's triangles are the rule.: In ascites and analogous abdominal cases the rule is for the two triangles to be equal; they therefore make up together a low but wide equilateral triangle bisected by the spine. The simultaneous occurrence of a right and of a left Grocco's triangle is incompatible with the alleged causation by pleural bulging across the vertebral column. The same reasoning applies to the theory that a pendulum displacement of the intrathoracic viscera across the middle line might explain the dulness. Anatomic probabilities are against any possible shifting of a collapsed pulmonary base away from its own vertebral growth. The assumption that a Grocco's triangle is produced directly by any fluid or other non-resonant substance immediately underlying it is negatived by the circumstance that the general outline of the triangle is always geometrically the same and is not contingent on the innumerable variations in size and shape which belong to fluid collections or to solidifications. This is an argument in favor of the causation suggested under the name of the pleximetric spine theory. The same view is supported by the results of the crucial test and counter test, which also afford proof of the genuineness of this clinical sign and of its helpfulness in the diagnosis of pleural and abdominal conditions.

8. **Chronic Suppuration of Maxillary Antrum.**—Donelan says that the important thing in chronic antral suppuration is to operate as early as possible by a sufficient removal of the middle or posterior part of the external nasal wall, and not to allow such cases to drift on to formation of nasal polypi and polypoid degeneration of the antral mucous membrane which may demand the much more severe and sometimes disfiguring radical operation.

10. **Catalepsy.**—A boy with previous history negative, had three fits in six weeks. The boy would first become very stiff for a short time and then jerk himself about, but he had never fallen, as there had always been time to recognize what was about to happen and to get the boy into a chair. There had not been any passing of urine in these attacks, neither had he ever bitten his tongue. There was no history of fits of any kind in any other member of the family. The last attack occurred about two weeks before the patient was first seen, and was apparently followed by a state of stupor, in which the boy would not feed himself, and had to be made to pass his urine. Otherwise he had been in a condition of blankness. When first seen by Core, the boy was in an absolutely passive condition. He allowed his limbs to be put into any position and made no attempt either to resist or to alter their attitude. He was, however, alive to painful stimuli, and resented pin-pricks by frowning and finally by turning his body away from the stimulus. The only muscles which were active were those of the eyes; these were moved voluntarily, and the patient watched proceedings with interest. The general condition was very good, the boy being well grown, and with remarkably well-developed muscles.

Shortly after his admission he would not swallow what was put into his mouth and nasal feeding had to be instituted. After the first meal given in this way, he took his food perfectly well if it was placed in his mouth. On the eighth day he developed a very slight but definite squint, the left internal rectus apparently being at fault. This, after varying from day to day, disappeared within a week of its appearance. The boy was treated with galvanism and massage, and although at the time of application he seemed to improve, he remained in the state described for over sixteen weeks. During this time he never, apart from electric stimulation, made a single voluntary movement. He lay on his back staring at the ceiling and generally soaked in urine. While being galvanized he turned himself about in order to evade the battery, and on several occasions shouted out, but as soon as the current was taken off he relapsed into his former state. Some ten weeks after his admission contractures of the fingers made their appearance, and any effort to extend them met with the most violent resistance. This was followed by flexion of the legs on the thighs, and of the thighs on the trunk, but the mental condition remained just as it was, and the limbs when straightened could be molded in the same way as when he was first seen. Sixteen weeks after his admission the boy was suddenly heard singing in the night, and shortly after he spoke a few words apart from electric stimulation. From this time he recovered rapidly, but for some time he was unable to feed himself and to speak; his muscles were in their original state of waxy flexibility. Thus after having been given a plate of rice and a spoon he would sit and stare at the food without making the least attempt to eat it. Then when some was lifted into his mouth he would start feeding himself and would continue to raise the spoon to his mouth long after the plate was empty. When told to stop he would obey slowly. If he was questioned, he would at first make no effort to answer, neither would he look at the questioner, but after a long pause he would reply in a peculiar monotonous tone. This transition state passed off rapidly, and the boy assumed what was probably his normal condition. This was one of irritating stupidity, mingled with a low degree of cunning. The temperature through the whole period of his stay in the hospital was normal. There was never any albuminuria. There were no signs of any cerebral trouble, and a diagnosis of hysteria was made. This was confirmed by the appearances of the contractures. A diagnosis discussed was one of postepileptic stupor, but the length of time which had elapsed between the last fit and his admission, fourteen days, put this out of the question. Then, again, the fits were not perfectly typical of epilepsy. Of the many hysterical manifestations the case conformed most closely to that known as catalepsy.

11. **Removal of Superfluous Hairs.**—The essentials for obtaining good results in Pirie's operation are: (1) Connect the needle to the negative pole; (2) use a fine stiff wire as a needle (the wire supplied with the finest hypodermic needle is a suitable one); and (3) insulate the wire so that only the last one-sixteenth of an inch supplies the current. The advantages of this method are two—(1) no scarring after the operation; and (2) a lower percentage of re-growth of hairs.

12. **Paralysis of the Extrinsic Muscles of the Eye.**—MacNab's method, briefly stated, is as follows:

1. A muscle is paralyzed when a diplopia occurs in one part of the field of vision or when there is diplopia over the whole field and the separation of the images increases in one direction.
2. The direction in which the diplopia is greatest indicates the direction of action of the affected muscle.
3. The image projected further in the direction of greatest diplopia is formed by the affected eye. When the candle is moved in the direction in which the diplopia increases, the image which moves most rapidly in that direction is the one formed by the affected eye.
4. The separation of images is greatest when the eye is looking along the line of the tendon of the affected muscle or when this object is opposite the end of the affected tendon.

British Medical Journal, London

June 19

13 *Radioactivity and Carcinoma. W. S. Lazarus-Barlow.
14 Red Degeneration of Uterine Fibroids Complicating Pregnancy. J. Bland-Sutton.
15 *Spontaneous Rupture of Cyst-Adenomatous Ovarian Tumors. H. Briggs.
16 Incidence of Gonorrhea in Gynecologic Hospital Practice. F. Ivens.
17 Cesarean Hysterectomy in Pregnancy Complicated by Myoma Uteri. J. B. Hellier.
18 *Hysterectomy for Puerperal Infection. A. K. Gordon.
19 Clean Midwifery in General Practice. A. H. Gregson.
20 Primary Epididymitis in Mumps. J. J. Waddelow.
21 Treatment of Boils and Carbuncles. A. O. Ward.
22 Tetanus Following Surgical Operations. J. I. Jaffé.
23 Poisoning by Bismuth Subnitrate Injected into a Knee-Joint. A. Don.

13. **Radioactivity and Carcinoma.**—Lazarus-Barlow has found that certain tissues of the human body show skotographic action (liver, kidney), while others do not (spleen, lung); that a larger amount of this property resides in female tissues that possess it than in male of the same kind; that the amount present in the liver increases from infancy to the age of 55 years, with an unexplained drop in both sexes during the age period 35 to 45, and that after 55, while it increases still further in the case of males, in females it undergoes a sharp diminution. He has shown that carcinomatous material possesses skotographic power, whether it be primary or secondary, and that female carcinomatous tissue has a higher skotographic value than male, and that the existence of a mass of carcinoma in a tissue modifies its normal skotographic value. He has also found that certain substances commonly supposed to be casually related to carcinoma possess the skotographic power to a high degree (cholesterin gallstone), while others are devoid of it (pipe clay, paraffin). Lazarus-Barlow has endeavored to throw some light on the nature of the skotographic action manifested by animal tissues and certain other substances, comparing their behavior with that of woods in which the action has been regarded as dependent on the formation of hydrogen peroxid and with that of recognized radioactive substances. On this point he has adduced evidence showing that the animal tissues and other substances under examination can not, so far as their action on a photographic plate in the dark is concerned, be grouped conclusively with the recognized radioactive substances or segregated into a class such as that formed by the woods, and believed by Russell to affect a photographic plate in the dark by means of a purely chemical action. They occupy an intermediate position and have affinities with the woods on the one hand, and with the recognized radioactive substance on the other.

15. **Cystadenoma of Ovary.**—Briggs records four cases which show that in non-malignant cyst adenomata the clinical manifestations are those of: (a) Tumor degeneration: (1) Impairment of health disproportionate to the size of the tumor; (2) abdominal pain; (3) variable distention of the abdomen; (4) irritability of the bladder; (5) irregular menstruation subject to the usual modifications of pregnancy, lactation and the climacteric. (b) Rupture of the cyst, acute pain, recurrent pain, vomiting, the accumulation at a variable rate of free fluid in the abdomen. The diagnosis of cyst rupture by free intraperitoneal fluid can only be (1) positive, when the partially filled cyst can be felt or when the previously firm cyst has completely collapsed; (2) presumptive, when the clinical manifestations of degeneration and rupture have been obtained; and (3) occasionally and exceptionally, when the free fluid is small in quantity and the rupture minute, both may escape detection before and during the operation of ovariotomy.

18. **Hysterectomy for Puerperal Infection.**—In a series of 250 cases of the more severe type of puerperal fever, Gordon has only attempted the operation once with a good prospect of success in the following case, though he has removed the uterus unsuccessfully in 5 other cases (twice by the vagina and three times abdominally) as a last resort and at the urgent solicitation of the relatives or of the medical attendant. As a rule, the patient is either in a condition of general septicemia with streptococci in the circulating blood when she arrives at the isolation hospital, or if the lesion is well localized, reacts to vigorous disinfection of the uterus. In the case reported the infection followed the removal of an adherent placenta by one who had no facilities for proper asepsis. Having determined by blood cultures that there was no general bacillary infection, and that it would probably not be possible adequately to disinfect the uterus by local palliative treatment, Gordon

amputated the uterus at the level of the internal os, leaving both ovaries and covering the stump with peritoneum in the usual manner. A rubber tube was placed in the remains of the cervix, and the peritoneal cavity closed without drainage. After the effects of the ether had passed off, the patient was propped up in the sitting position and three pints of saline solution given subcutaneously. The woman made a slow but complete recovery.

Medical Press and Circular, London

June 2

24 Clinical Forms of Arteriosclerosis. H. Huchard.
25 Essentials of Physiologic History. D. F. Harris.
26 Experiment to Determine the Value of Colored Underclothing for Soldiers. J. M. Phalen and H. J. Nichols.
27 Suprapubic Prostatectomy. G. P. Newbolt.

June 9

28 Extraction and Cutting of the Roots of the Trigeminal Nerve as an Operation Substituting the Extirpation of the Gasserian Ganglion. J. Dollinger.
29 Essentials of Physiologic History. D. F. Harris.
30 Eye Strain (Asthenopia). G. A. Berry.
31 High-Frequency Cytolysis and Fulguration of Cancer. J. A. Riviere.
32 Recent Researches on the Function of the Non-Auditory Ear. R. H. Woods.

Clinical Journal, London

June 2

33 Cancer of the Gall Bladder and Bile Ducts. J. Bland-Sutton.
34 Syphilis. H. Cripps.
35 Demonstration of Cases of Nervous Disease by the Cinematograph. W. Harris.

June 9

36 Use of the Cystoscope. E. S. Bishop.
37 Results of Recent Research on Certain Diseases. F. M. Sandwith.
38 Diagnosis of Malignant Disease by Estimating the Antitryptic Power of Cancerous Serums. E. C. Hort.

Glasgow Medical Journal

May

39 Report of Cases Illustrating Some of the Difficulties in the Diagnosis of Abdominal Disease. A. E. Maylard.
40 *"Puna" or "Soroche." J. W. Allan.
41 Macrostoma, Associated with Cleft of Soft Palate. G. H. Edington.
42 Dermatitis Repens. J. W. Nicol.
43 *Treatment of Phthisis by Intravenous Injection of Iodoform. J. Bain.
44 Rheumatoid Arthritis. W. F. Somerville.

40. **Puna.**—Allan describes a disease not uncommon in the mountainous countries of South America, the effect of diminished atmospheric pressure on the human organism. It is called by the various names of puna, soroche, mareo and veta. He gives an account of it received from a layman of advanced middle life who was attacked by it in the mountains of Bolivia. The symptoms were great depression and sickness, vomiting, gasping for breath, and later, bleeding, formation of mucus or phlegm in the throat, mixed with blood, the throat being dry and painful. It gets worse instead of better on going to bed. Many persons in Oruro, a mining town in the mountains of Bolivia, have died from it. It frequently attacks individuals suddenly. The narrator improved sensibly while coming down on the railway from Oruro. The author's other informant had never had the disease, but had seen many cases, the course of which he describes much as the other man had done. He is of opinion that puna does not depend alone on the elevation, but that the cold wind has much to do with it. He is further of opinion that some persons bring the condition on themselves by nervous apprehension.

43. **Iodoform Injection in Phthisis.**—Bain points out that the sanatorium, as at present constituted, is for those who can afford to pay a minimum fee, and for the very indigent who come with cognizance of the inspector of poor. The great majority of the working classes, however, are excluded, and he records in more or less detail six cases from this class to show what can be done for working people, in their own homes and under very unpromising surroundings, by intravenous injections of iodoform. The solution used is that of Dewar, as follows: Liquid paraffin, 40 per cent., anesthetic ether to 2 ounces. In every 20 minims dissolve one grain of iodoform; thus 10 minims contain ½ gr. of the drug. The mode of administration was detailed in an abstract of Dewar's article (*British Medical Journal*, Jan. 14, 1905) in THE JOURNAL, Feb. 11, 1905. The amount of iodoform which Bain's patients all received was, on an average, ½ grain every second day, and, toward the end of treatment, every third day, except at the first injection, when it is advisable only to give ¼ grain, or 5 minims of the ethereal solution of the drug, to see how the patient is going to stand it. On the day following an injection of 15 minims, the patient sometimes complains of severe headache and aching all over the body, particularly in the lumbar region, which might lead one to suspect the onset of influenza, but these symptoms clear up in 24 hours. These cases are at present undergoing the test of time, and one can not yet say that the cure will be permanent. However, if one were to judge by the look of robust health on the faces of these patients, and their own statements that their health has never been better, one would be inclined to say that they will never again be troubled with pulmonary tuberculosis.

Annals of Tropical Medicine, London

May

45 Nomenclature of Mammalian Trypanosomes Observed in Northwestern Rhodesia. R. E. Montgomery and A. Kinghorn.
46 Experiments on Combined Atoxyl-Mercury Treatment in Monkeys Infected with Trypanosoma Gambiense. A. Breinl.
47 *Drugs from the Congo. P. H. Marsden.
48 Gregarine Parasitic in the Dog Flea, *Ctenocephalus Sorraticeps*. E. H. Ross.
49 Action of Aryl-Stibinic Acids in Experimental Trypanosomiasis. A. Breinl and M. Nierenstein.
50 *Mechanism of Hemolysis in Piroplasmosis Canis. A. Breinl and H. E. Annett.
51 Gland Puncture in the Diagnosis of Animal Trypanosomiasis. R. E. Montgomery and A. Kinghorn.
52 Observations on the Hooklets of *Cysticercus Cellulosæ* in Man. J. W. W. Stephens.

47. **Drugs from the Congo.**—Marsden follows up a previous study of native African remedies with a macroscopic and microscopic description of mouindu. No mention is made of its clinical uses.

50. **Piroplasmosis Canis.**—Breinl and Annett describe researches on dogs which tend to prove that the hemolysis and the hemoglobinuria in infections with *Piroplasma canis* is due neither to an isolysin nor to an autolysin, but apparently only to a disintegration of red blood corpuscles after the escape of the parasites from them.

Dublin Journal of Medical Science

June

53 Physical Deterioration and a Remedy. J. B. Story.
54 The General Anesthetic Bill, 1908. T. P. C. Kirkpatrick.
55 *Grocco's Paravertebral Triangle of Dulness. T. G. Moorhead.

55. **Grocco's Paravertebral Triangle.**—According to Moorhead, this sign is found only in cases of pleural effusion, and is absent in pneumonia and pulmonary fibrosis. It is not present in all cases of pleural effusion. Moorhead found it in fourteen out of nineteen cases only. This is in agreement with the earlier observations of others, but most clinicians now maintain its invariable presence in effusion. He has not observed any difference varying with the side on which the effusion existed, though some maintain that the dulness is best marked when the effusion is on the right side. The sign, when present, is of great value; its absence is of less importance. If the sign has once been observed to be present its disappearance is of great value in distinguishing between thickened pleura and persistent effusion. Moorhead has never observed the dulness to extend above the fourth dorsal spine, even when the effusion filled the entire chest. He believes, moreover, that the reason for his finding is the fact that the easily movable mediastinal mesentery does not extend above the fourth dorsal spine. Above that level lies the superior mediastinum, in which the structures are less readily movable. This observation, therefore, is a further point in favor of the dulness being caused by mediastinal displacement.

Annales de Dermatologie et de Syphiligraphie, Paris

May, X, No. 5, pp. 289-351

56 Ringworm, and Connection between Ringworm and Trichophytons. (Sur les soi-disant godets produits par des trichophytons et de soi-disant trichophytons producteurs de godets.) R. Sabouraud.
57 Alterations of Tissues after Mercurial Injections. (Altérations déterminées par l'injection d'huile grise.) Pellier.
58 Case of Erythema Induratum, with Positive Tuberculin Reaction, Subsiding under Injections of Tuberculin. G. Thibierge and P. Gastinel.

Annales de l'Institut Pasteur, Paris

May, XXIII, No. 5, pp. 361-440

59 Action of Yoghurt Ferment on Sugars. (Action du ferment bulgare sur les principaux sucres.) G. Bertrand and F. Duchacek.
60 Whooping Cough Endotoxin. (Endotoxine coquelucheuse.) J. Bordet and O. Gengou.
61 Epizootic Lymphangitis in Horses. (Lymphangite épizootique des équidés au Sénégal.) A. Thiroux and L. Teppaz.
62 Treatment of Trypanosomiases in Horses with Orpiment. (Traitement des trypanosomiases chez les chevaux par l'orpiment seul ou associé à l'atoxyl.) Id.
63 Transmission to Young of Immunity to Rabies. (Etude de la transmission héréditaire de l'immunité antirabique.) P. Remlinger.

Archives Générales de Chirurgie, Paris

May, III, No. 5, pp. 441-550

64 *Ischemic Paralysis. (Paralysie ischémique de Volkmann.) R. Froelich. Commenced in No. 4.
65 Partial Nephrectomy in Treatment of Hydatid Cysts in the Kidney. V. Nicaise.
66 Tardy Deformity following Broken Leg. (Déformations tardives consécutives aux fractures du membre inférieur.) D. G. Zesas

64. **Ischemic Paralysis.**—Froelich reports eight cases, the trouble following compression from an apparatus applied for fracture of the bones of the arm or a tourniquet to arrest hemorrhage in the hand. His patients were between 3 and 11 years, and he does not know of any instance in which this form of paralysis occurred in adults. In treatment he applied an orthopedic appliance or made the tendons longer or the bones shorter. The latter operation is to be regarded as the preferable method for treatment in the majority of cases of ischemic paralysis. In one case of total suppurative myositis of the muscles of the forearm, he attempted to suture the extensor tendons to the triceps and the antagonist tendons to the biceps, but the tendons were found destroyed beyond relief. The details of the technic followed are described; the outcome was always satisfactory, but never absolutely perfect from the esthetic point of view.

Archives Générales de Médécine, Paris

May, CC, No. 5, pp.257-320

67 *Differential Diagnosis of Phlegmonous Angina and Diphtheria. H. Roger and J. Margarot.
68 Visual Disturbances and Lesions in the Fundus in General Paralysis. A. Rodiet and P. Pansier.

67. **Differentiation of Phlegmonous Angina and Diphtheria.**—Roger and Margarot have observed 2 cases of pseudophlegmonous angina of diphtheritic origin and have found 25 on record, with 5 fatalities. This form of diphtheritic sore throat is most common between the ages of 15 and 30; children seldom present it. In another case they encountered a phlegmonous angina which simulated true diphtheria, although of non-diphtheritic origin. In a certain number of cases in the literature the two affections were associated. Diphtheria antitoxin should be injected without waiting to ascertain whether the diphtheria bacilli are to be incriminated or not. In these cases, more than anywhere, the motto, "in case of doubt do nothing," must be systematically disregarded, and antitoxin used until the case clears up.

Grèce Médicale, Syra, Greece

May 15, XI, Nos. 9-10. Last indexed February 20, p. 668

69 *Malaria in Children. (Malaria infantile.) J. P. Cardamatis. Commenced in No. 3.

69. **Malaria in Children.**—Cardamatis reviews what has been reported on malaria in children, and adds his own experiences with 806 children under 5, 1,228 under 10 and 985 from 10 to 15 years old, out of a total of 8,600 malaria patients in his charge at Athens during the ten years ending 1904. Enlargement of the spleen was observed in from 2.87 to 50 per cent. of all the children. Infants less than a year old seem to display greater resistance to the disease, both against acquiring it and against its effects. Malarial cachexia occurred most frequently between the ages of 3 and 7; if children thus affected survive, they acquire durable immunity. The spleen is not always enlarged even in these severe cases, and the anemia is not always intense. Various types of the hematozoa were found combined in the blood in some cases. Gastrointestinal disturbances were the main complication of the malaria in the children, but the blood findings were negative in 92 cases of febrile diarrhea ascribed at first to a malarial origin. Malarial nephritis has scarcely ever been observed in a child, but epistaxis, purpura, vomiting of blood, cirrhosis, urticaria and ascites are frequent complications, as also convulsions and delirium. Bronchitis, pneumonia and other infections are not complications, but merely intercurrent diseases. Epidemics of malaria and whooping cough or measles sometimes coincided, but each disease ran its course independently of the other in the same child. Tuberculosis and typhoid fever were rarely observed in malarial children. In chronic malaria, quinin should be given for three months, even if the child has left the malarial region. The disinfection of the blood is the most important task in prophylaxis of malaria, as the children are responsible for the endemics in nearly every instance. Between the ages of 2 and 5 it is almost impossible to get them to take the quinin, although the new chocolate tablets have improved conditions in this respect. He advises a little quinin for the non-infected children as a prophylactic measure, about 0.2 gm. (3 grains) every day, for this age, in the endemic foci.

Lyon Chirurgical

May, I, No. 7, pp. 721-856

70 *The Parathyroids and Their Tumors. (Les glandules parathyroïdes et leurs tumeurs.) L. Bérard and H. Alamartine.
71 *Radical Operation for Femoral Hernia through Inguinal Region without Closure of Femoral Ring. (Cure radicale de la hernie crurale par la voie inguinale sans fermeture de l'anneau crural.) M. Vallas and E. Perrin.
72 *Lumbar Puncture in Injuries of the Head. (Traitement des accidents méningés lointains par évacuation de l'épanchement sanguin sousarachnoïdien.) P. Savy.
73 Treatment of Ptosis by Transplantation of Tongue Flap from Tendon of Superior Rectus on the Tarsal Cartilage of the Paralyzed Lid. (Ptosis opéré par la méthode de Motais.) L. Dor.

70. **The Parathyroids and Their Tumors.**—Bérard and Alamartine have examined with the microscope the parathyroids in fifty adults from 19 to 75 years old, their report forming a good picture of what is known to date of the anatomy, physiology and pathology of the parathyroids. They found a single parathyroid in 1 case, two in 12, three in 11, and four in 6 cases, and report a case of tumor in one parathyroid. They summarize from the records 29 cases of parathyroid tumors. In 3 instances the growth was evidently malignant and metastasis proved fatal after removal of the primary tumor. In 24 cases the tumor was formed exclusively of parathyroid tissue, while in 5 there were islands of thyroid tissue. No clinical syndrome is yet known corresponding to overfunctioning of the parathyroids, but the rapid growth of a tumor in a parathyroid gland justifies the assumption of malignancy and indicates prompt removal. Makai reported 3 cases in 1907, Walther one last year and da Costa a similar one. Nearly two pages of bibliography and a dozen illustrations accompany the long article.

71. **Treatment of Femoral Hernia.**—Vallas and Perrin think that the main point in operating on a femoral hernia is to obliterate the sac high up. This is the only means to prevent relapse, and it can be best accomplished by obtaining access to the sac through the inguinal canal. This remedies the conditions causing the predisposition to hernia, while it does not weaken the femoral canal. The conditions in the femoral canal do not favor its permanent closure. They add to the five previously published, seven new cases in which this inguinal method of treating femoral hernia was successfully applied; the patients were between 20 and 40, all employed in laborious work which they were able to resume the day they left the hospital, without necessity for special precautions. The hernia recurred in two of the twelve cases, once in consequence of secondary local suppuration and once on account of an unusually difficult childbirth after an intervening year of health.

72. **Lumbar Puncture in Treatment of Trauma of the Skull.**—Savy reports the case of a woman of 43 who fell from a second story window; subconjunctival ecchymosis suggested the possibility of a fracture of the base of the skull, but no operation was attempted, as the patient rapidly recovered. Three months later weakness and stiffness of the legs with persistent headache and in the course of a few weeks other symptoms indicating a meningeal process developed, and the patient complained of pain along the sciatic nerves. Lumbar puncture allowed the escape of blackish blood, a drop at a time. Improvement followed the second and third lumbar

puncture, but the fourth brought neither fluid nor blood. About 40 c.c. in all of the bloody effusion was evacuated, and the symptoms gradually subsided to complete recovery by the end of a month. The long interval of latency, the possibility of evacuating the blood at this late date, the rapid improvement and final recovery, all emphasize the importance of lumbar puncture in case of injury to the skull. He thinks that the extravasated blood did not cause the symptoms so much by compression as by the toxic action of the decomposing blood. Consequently, he advises lumbar puncture, even if a long interval has elapsed since the primary trauma, in all cases of nervous disturbances possibly to be attributed to this cause.

Obstétrique, Paris

April, N. S., II, No. 4, pp. 241-311

74 Tubular Menstruation. (Recherches sur la menstruation tubaire.) F. Delporte.
75 *Serodiagnosis of Syphilis in Pregnant Women and New-Born Infants. (Recherches sur le sérodiagnostic de la syphilis chez la femme enceinte et l'enfant nouveau-né.) P. Bar and R. Daunay. Commenced in No. 3.
76 Spontaneous Healing of Rectovaginal Lacerations During Childbirth. (Guérison spontanée des déchirures recto-vaginales produites au cours de l'accouchement.) C. Jeannin.

75. **Seroreaction in Pregnant Women and New-Born Infants.**—This communication from the Tarnier maternity at Paris gives the findings of the Wassermann test with 57 infants and their mothers, with a number of controls. They seem to show that with florid syphilis in the mothers the serum reaction in the infants is less frequently positive than when the maternal syphilis is quiescent or merely probable or suspected. The reaction is inclined to be negative in infants whose syphilitic mothers have been thoroughly treated. Negative findings in the infant of a woman with florid syphilis do not authorize the assumption that it is free from syphilis; positive findings have the same significance as in the mother. At the same time, the writers state, partial or doubtful reactions are obtained frequently with infants whose mothers are free from syphilis beyond question. There seems to be some factor, besides syphilis, in the new-born which has a tendency to modify the reaction toward a positive result. This occurred in their tests generally in connection with bile pigments in the serum or a lactescent serum. A positive or partial reaction was obtained with the cerebrospinal fluid of infants with syphilitic paralysis, untreated.

Presse Médicale, Paris

June 2, XVII, No. 44, pp. 401-408

77 Wounds of the Chest. (Plaies de poitrine et thoracotomie.) P. Riche.
78 Massage and Exercises in Treatment of Hemiplegia. (Traitement kinésithérapique des hémiplégiques.) P. Koulindjy.

June 5, No. 45, pp. 409-416

79 *Sudden Death in Incipient General Paralysis. (La mort subite dans la paralysie générale au debut.) J. Roubinovitch and H. Paillard.
80 *The "Alternating Suture" for Enteroanastomosis. (Procédé rapide de suture intestinale.) H. Chaput.

June 9, No. 46, pp. 417-424

81 Diagnosis of Facial Neuralgias. F. Levy.

79. **Sudden Death in Incipient General Paralysis.**—This occurred in 10 out of 238 cases of general paralysis at Bicêtre since 1901; adding this number to others on record, we have a proportion of 4.6 per cent. of 538 cases. An additional case is described in detail; the patient was a man of 33, infected with syphilis eleven years before. A year ago he became melancholy and talked of suicide, but was restored to apparent normal condition for a few months by a month of mercurial treatment, but then signs of general paralysis developed with progressive maniacal excitement and sudden death for which no organic cause could be discovered.

80. **The Alternating Suture.**—Chaput applies this term to a suture made by drawing the tissues to be sutured alternately across to the other side over the tip of the long, straight needle, which thus pierces each in turn. The lips of the wound fit into each other in a series of scallops through which the needle passes in a straight line. After the needle has been drawn through, the lips of the wound spring back into place to form a straight line, and each stitch forms a U. Drawing the thread tight again straightens it, and the lips of the wound again fit into each other in a series of alternating scallops. This suture takes little time and has other advantages which he enumerates in connection with the three illustrations.

Revue de Chirurgie, Paris

May, XXIX, No. 5, pp. 875-1028

82 *Peptic Ulcer in Jejunum. (La fistule jéjuno-colique par ulcère peptique du jéjunum à la suite de la gastro-entérostomie.) G. Lion and C. Moreau.

82. **Peptic Ulcer of the Jejunum.**—Lion and Moreau state that only 3 cases have been reported to date of a fistula between the jejunum and the colon, the result of a peptic ulcer in the jejunum, but they have found records of 40 cases of the latter. Only 4 of the patients were women. They report 2 additional cases of fistula formation with a peptic jejunal ulcer, and discuss the pathologic anatomy and symptoms, which include diarrhea, eructations with fecaloid odor, vomiting and pain. The diarrhea is always exceptionally severe and abundant, resisting all treatment but showing sometimes the influence of food and then appearing three or four hours after meals. Other signs are the excessive peristalsis, paradoxical splashing sounds and dulness below. The details of the 5 cases with fistula are given in full.

Semaine Médicale, Paris

June 2, XXIX, No. 22, pp. 253-264

83 *Aortic Insufficiency without Murmur. (Les insuffisances aortiques sans souffle.) L. Bard.

83. **Aortic Insufficiency Without Murmur.**—Bard believes that many cases of aortic insufficiency escape recognition on account of the absence of the characteristic diastolic basic murmur, but that the condition can be readily diagnosed by the peculiar dome protuberance of the wall over the apex which is lifted up in a dome at each heart impulse—the *choc en dôme*. Its absence, when other signs of aortic insufficiency are pronounced, indicates accessory complications, possibly pericarditis. It is seldom absent in the young, and it occurs in several varieties of aortic insufficiency as he describes in detail. Differentiation is important from several standpoints, especially from that of kidney disease. The detection of the dome push against the chest wall before the development of the murmur may reveal aortic insufficiency in its incipiency, before any other sign suggests it.

Beiträge zur klinischen Chirurgie, Tübingen

April, LXII, No. 3, pp. 593-820

84 Operative Treatment of Abdominal Injuries. (Zur Chirurgie der Bauchverletzungen.) W. Weber.
85 Local Anesthesia for Major Operations. (Lokalanästhesie im Krankenhaus, nebst Bermerkungen über die Technik der örtlichen Anästhesierung.) H. Braun.
86 *Treatment of Cholelithiasis and Cholecystitis. M. Friedemann.
87 Ultimate Results of Circular Suture of Arteries and Implantation of Veins. (Beiträge zur Gefässchirurgie.) R. Stich, M. Makkas and W. Capelle.

86. **Operations on the Bile Passages.**—Friedemann has examined again recently 155 patients operated on for cholelithiasis or cholecystitis between 1901 and 1907, and tabulates the operative and ultimate findings. They show good results in cases in which intervention was restricted to conservative measures, while nervous or other disturbances still persist in 10 of the 15 patients in whom the gall bladder was removed.

Correspondenz-Blatt für Schweizer Aerzte, Basle

May 15, XXXIX, No. 10, pp. 329-360

88 *Serodiagnosis of Syphilis in Practice. (Klinische Verwendbarkeit der Wassermann-Neisser-Bruck'schen Seroreaktion.) H. Merz.
89 *Importance of Diazo Reaction in Prognosis of Tuberculosis and other Infectious Diseases. J. P. Gwerder.

88. **Serodiagnosis of Syphilis.**—This communication from Neisser's clinic goes over about the same ground as in articles from there recently summarized in these columns. The findings in 1,892 cases are analyzed.

89. **Diazo Reaction in Prognosis of Infectious Diseases.**—Gwerder's research has demonstrated that the substances responsible for the diazo reaction may in certain cases be present in the serum but for some reason fail to show the reaction. On the other hand, it is possible that patients showing a pronounced diazo reaction may improve until the test gives transient or permanent negative findings. Only when the re-

action is obtained on repetition of the test over a long period can it be regarded as necessarily of bad omen.

Deutsche medizinische Wochenschrift, Berlin

June 3, XXXV, No. 22, pp. 961-1000

90 *Treatment of Gastric Ulcer. (Behandlung des Magengeschwürs.) W. von Leube.
91 *Respiration and the Work of the Heart. (Atmung und Herzarbeit.) H. Cornet and J. Berninger.
92 *Treatment of Empyema. Treibmann.
93 Peripheral Nerves and Trauma. (Peripherische Nerven und Unfall.) H. Kron.
94 *Chronic Chorea after Migraine. T. O. Schabad.
95 *The Cutaneous Tuberculin Reaction in New-Born Infants and their Mothers. (Die Pirquetsche Tuberkulinprobe bei Neugeborenen und ihren Müttern.) Poten and Griemert.
96 The Stain Reaction in Syphilis. A. Galambos.
97 Rapid Healing of Perforation of Tympanic Membrane under Scarlet Red. (Scharlachrot bei Trommelfellperforationen.) A. Heermann.

90. **Treatment of Gastric Ulcer.**—At the recent German congress for internal medicine, Lenhartz reported his success in 295 cases of gastric ulcer treated according to his principle of a more nourishing diet than that allowed by von Leube, which has been the standard for so long. In 262 cases there had been a hemorrhage just before treatment was commenced, and in 33 the stool contained blood, but his total mortality was 2.3 per cent., and only 18 patients had hemorrhage after treatment was commenced. He commented on the prompt recovery and the lack of weakness. In this article von Leube replies to Lenhartz, maintaining that his thirty years of experience and especially the 627 cases of gastric ulcer in which he has applied his "rest cure" during the last eleven years have fully confirmed the advantages of his technic while he sees possibilities of danger in following Lenhartz's directions. Fully 90 per cent. of his patients were cured; 8.5 per cent. improved, and only 1 per cent. failed to benefit, while the mortality from hemorrhage was 0.3 per cent. He is convinced that the only way to induce the production of the life-saving thrombus and thus check the tendency to hemorrhage is to keep the stomach absolutely at rest; the patient is kept in bed with a single dose of 30 drops of a 1 per thousand solution of adrenalin supplemented by bismuth, an ice bag over the stomach, an injection of morphin to keep the stomach quiet (never for its pain-reducing properties), and complete abstinence from food by the mouth. Ingestion of egg or milk may bind the acid, but at the same time they stimulate the peristaltic movements of the stomach, which it is the aim of treatment to avoid. Only after the stool has lost its admixture of blood and other signs show that the hemorrhage has been arrested, which is usually the case in two or three days, he then cautiously commences a liquid diet in the course of one or two days. The patients may lose in weight at first, but they have made it up and more by the end of the second week. He refrains from iron on principle, as ulcer patients do not seem to tolerate it well, and study of 25 cases on the liquid diet for two weeks did not show any special reduction in the hemoglobin. Laxatives must be strictly avoided. The four elements of his "rest cure" are the absolute rest in bed; one glass of tepid Carlsbad water twice a day, fasting; hot flaxseed poultices, renewed every ten or fifteen minutes, applied continuously for twelve hours, at night a wet linen cloth being substituted. The special diet completes the course of treatment, and he emphasizes the fact that the combination of these four factors is indispensable for the best results, and that complete abstinence from food until the hemorrhage has been arrested is the only safe and commendable method.

91. **Respiration and the Work of the Heart.**—Cornet and Berninger have been applying in the treatment of affections of the myocardium a mechanical method of increasing the respiration which in turn increases the action of the heart with better arterial nourishment throughout. A number of cases are reported in which the deeper breathing had an unmistakable effect in increasing the functioning of the heart and its blood supply, with the other advantages of increased ventilation in the lungs. The apparatus used is a large chair with small electromotor beneath which works two pads that spring against the chest during the phase of expiration, compressing the chest with adjustable force and springing back during inspiration. Residual air is thus squeezed out of the lungs and inspiration is rendered much deeper. Experiences with 100 patients with asthma, bronchitis, etc., demonstrated the benefit of this measure, and tests on 31 persons with normal hearts confirmed the physiologic improvement which it induced. In health the blood pressure does not change, but in 54 patients with heart disease the systolic blood pressure varied from 16 to 64 cm. water. This chair apparatus has rendered good service in chloroform, carbon monoxid, morphin and other poisoning, it being thus possible to keep up artificial respiration for fifteen and eighteen hours. Michaelis has reported a case of carbon monoxid poisoning with total apnea in which the apparatus worked for twenty-four hours until the natural respiration was fully restored; at every attempt before this to remove the apparatus, the respiration ceased. It maintains a nearly isolated action of the heart, and the changes in the blood pressure permit oversight of the functional capacity of the heart.

92. **Treatment of Empyema.**—Treibmann criticises unfavorably the method of treating empyema of the pleura recently advocated by Pust and described in these columns April 3, page 1149. It makes much greater demands on the patient's resisting powers than the ordinary technic of siphon drainage which gave 92.1 per cent. cures in 38 cases of empyema in his experience in the ten years ending 1904. The drainage was kept up on an average of 55 days; only 2.6 per cent. of the patients were not benefited; other clinics have reported equally favorable results. The siphon drainage is applicable only for the non-malignant cases and when simple topographical conditions permit; tuberculous or purulent empyema, and empyema with cavities generally require surgical measures.

94. **Chronic Chorea After Migraine.**—The patient was a woman of 50 who had had migraine recurring about every month or oftener, since the age of 22 except during one of her twelve pregnancies, during which she suffered from chorea. The chorea later became chronic, and Schabad thinks that the case throws some light on the origin of chorea, especially as migraine has been known to blend into epilepsy. The migraine is probably only a functional affection of the vasomotors in the brain, but its repetition may induce various anatomic disturbances, such as extravasation of blood into the brain, softening of the brain, hemorrhagic pachymeningitis, hypertrophy and thickening of the hemispheres or thrombosis of the internal carotid. Some of these changes are found at autopsy of persons suffering during life from chronic progressive hereditary chorea.

95. **The Cutaneous Tuberculin Test in the Very Young.**—Poten and Griemert applied the Pirquet test in 53 children less than two weeks old and in 4 less than four weeks old, the mothers being apparently free from tuberculosis. Not one of the children showed a trace of reaction, not even on a repetition. They regard this as conclusive evidence that negative findings positively exclude tuberculosis. The unreliability of the cutaneous test for the diagnosis of active tuberculosis is now generally recognized; it is so extremely sensitive that it apparently reveals every focus of tuberculosis, no matter how harmless. But, they add, this great sensitiveness may prove of inestimable service in the recognition of incipient tuberculosis in children. The moment that the negative reaction of the infant becomes transformed into ever so weak a positive reaction, the enemy has penetrated into the body. In order not to overlook this moment, so as to be able to combat the foe at once, the cutaneous test should be repeated once or twice a year or still more frequently. They say that the simplicity of the test and its absolute harmlessness render this by no means an utopian idea; it opens a prospect for a rational and effectual fight against tuberculosis, while the infection is still capable of being promptly eradicated.

Medizinische Klinik, Berlin

June 6, V, No. 23, pp. 837-874

98 *Diagnosis of Brain Tumor. (Zur Diagnose des Hirntumors.) A. Schüller.
99 *Roentgen Findings in Digestive Tract. (Neuere besonders radioskopische Ergebnisse aus dem Gebiete der Magen und Darmuntersuchungen.) C. A. Ewald and M. Cohn.
100 Mechanotherapy of Nerve, Heart and Metabolic Disturbances. (Neuerungen auf dem Gebiete der Heilgymnastik der Nerven, Herz und Stoffwechselkrankheiten.) S. Munter.
101 Biologic Research in Balneology. A. Bickel.
102 Seaside Sanatoriums for Children in Europe. (Die Kinderseehospize Europas und ihre Resultate.) Häberlin.

98. **Diagnosis of Brain Tumor.**—Schüller reviews the various symptoms of brain tumor and calls attention to the fact that headache may be intermittent, more like migraine; this is especially liable with tumors in the hypophysis region. In one case this recurring migraine was the only symptom that suggested the tumor, finally revealed by the Roentgen rays. Choked disc and vomiting may be lacking in the picture of a tumor in the frontal region, but changes in the character are liable with this form. Somnolency may suggest a tumor in the third ventricle. The syndrome of pseudotumor occurs suddenly, generally in children or young adults, and although presenting choked disc, Jacksonian epilepsy and hemiplegia, it may subside completely, disproving the existence of an actual tumor. The latest figures give still a mortality of 30 per cent. and permanent recovery in only 5 per cent., but even this is a great gain as the patients are doomed without intervention.

99. **Roentgen Examination of the Digestive Tract.**—Ewald and Cohn review their experience with various tests and Roentgen examination of the digestive tract. The most instructive information is obtained in affections of the esophagus. The findings also show that the tonus of the stomach wall is normal far less frequently than was formerly supposed. Inflation of the stomach causes it to expand in all directions, and the organ is generally found horizontal, while the Roentgen rays, with bismuth dragging the stomach down, usually show it more perpendicular; the patient generally reclines for inflation and stands for Roentgen examination. The Roentgen rays are of little use in incipient gastric cancer in most cases, but they are important for differentiation of hour-glass stomach and to reveal the cause for the epigastric tender points. Castor oil is indispensable in preparing a patient for Roentgen examination of the abdominal organs; it does not draw much water from the intestinal walls. Fluid in the bowel is the worst enemy of Roentgen research. False impressions are obtained when the skiagrams of the digestive tract are taken within a few minutes. The most instructive findings are obtained with exposures made in the course of 48 hours, during which the conditions are examined at intervals with the screen.

Münchener medizinische Wochenschrift

June 1, LVI, No. 22, pp. 1113-1160

103 *"Phrenocardia;" a Special Heart Neurosis. (Ist die von Max Herz beschriebene "Phrenocardie" eine scharf abzugrenzende Form der "Herzneurosen?") W. Erb.
104 *Peripheral Greenish-Brown Discoloration of the Cornea as Symptom of a Special General Nervous Disease. (Die periphere braun-grünliche Hornhautverfärbung, als Symptom einer eigenartigen Allgemeinerkrankung.) B. Fleischer.
105 *Two Cases of Aspiration of Foreign Bodies. (2 Fälle von Fremdkörperaspiration.) H. Bayer.
106 Morning's Milk in Infant Feeding. (Verwendung der Morgenmilch für Säuglinge.) H. Berger.
107 Two New Instruments for Testing Hearing. (Neuerungen auf dem Gebiete der funktionellen Prüfung des Gehörorganes.) R. Dölger.
108 Importance for Prognosis of Hemolysis by Streptococci. W. Sigwart.
109 Study of Neutrophile Blood Picture. (Zur Untersuchungsmethode des neutrophilen Blutbildes.) R. Kothe.
110 *How Typhoid Fever Spreads. (Art der Typhusausbreitung in einer Stadt.) H. Kayser. Commenced in No. 21.
111 Successful Removal of Tumor in Cervical Spinal Cord in Two Cases. (Beiträge zur Neuro-Chirurgie.) H. Oppenheim and F. Krause. Commenced in No. 20.

103. **Cardiac Neurosis.**—Herz has recently described a special neurosis affecting the heart, which he calls "phrenocardia," and defines as a "sexual psychogenic cardiac neurosis." The syndrome includes characteristic paroxysmal localized pain in the heart, shooting pains, palpitations, tachycardia, painful breathing, oppression, anguish and sometimes nervous chills, deep sighing and voiding of large amounts of pale urine, but no actual dyspnea. The physical findings in the heart appear entirely normal. The Roentgen rays reveal that the diaphragm is very low; sometimes the heart is abnormally movable, and sometimes there may be a slight systolic murmur and duplication of the first sound, but never any change in the blood pressure. These alarming attacks occur generally in the evening or night and may last for one-half or several hours and may recur nightly or at longer intervals. The condition is more frequent in middle-aged women than in men, but may occur at all ages. Herz assumes as the essential and most frequent source abnormal or exaggerated sexual longings, generally disappointment in love or loss of husband or wife, although every possible sexual occurrence may be connected with it. Erb here reports 25 cases, 15 of which, including 11 females, are typical of the neurosis as Herz has described it. The erotic basis was more than probable in a number. In 5 other cases the affection was manifestly connected with the genital organs as it recurred at pregnancy or postpartum, or with chronic metritis with menorrhagia, onanism, chronic gonorrhea or syphilophobia. Besides psychotherapy, tonics and sedatives as for neurasthenia and hysteria form the basis of treatment, while the actual heart tonics, the stronger hypnotics, are contraindicated except in special circumstances. In conclusion Erb accepts this syndrome as an entity, although its definition as necessarily of sexual origin is not yet fully established.

104. **Discoloration of Cornea as Symptom of Constitutional Disturbance.**—Fleischer adds two more to the two cases previously reported from the Tübingen clinic by Kayser in which a nervous affection resembling multiple sclerosis was accompanied by a greenish-brown discoloration of the cornea similar to that of bronzed diabetes. In three of the four cases there was a history of acute articular rheumatism. The most striking symptom was progressive tremor. No signs of true sclerosis could be discovered at autopsy.

105. **Aspiration of Sequester.**—Bayer reports a case in which autopsy revealed a molar of the first dentition as the cause of the fatal lung abscess in a boy of nine. A similar abscess in the second case was explained by the discovery of a sequester from a syphilitic perforation of the hard palate. Both foreign bodies had been aspirated into the right bronchus.

110. **Distribution of Typhoid in a City.**—The German authorities have made a special study of typhoid in the city of Strasburg, the most advanced ideas in regard to detection of sources of infection and means to extinguish them having been put in action. Kayser here presents the data learned in the course of this four-years' campaign. A total of 505 cases of typhoid were recorded—about 0.92 per thousand inhabitants. In 32 cases paratyphoid bacilli were involved. Certain streets in the city are entitled to be called "typhoid streets," as only 23 per cent. of the total cases occurred isolated on a street. In 479 cases, the 384 houses involved were on 216 streets, this predilection for certain streets being explained by discovery of chronic bacillus carriers on some of these streets. Fully 73 per cent. of the 804 streets of Strasburg were entirely free from typhoid although many were closely populated. The various occupations are tabulated in comparison with the frequency of typhoid, the results showing that it can almost be classed as an occupational affection for persons dealing in food materials, for cooks, housemaids, laundry and dairy employés and bakers. Fully 2.6 per cent. of the bakers of Strasburg contracted typhoid, probably from drinking raw milk. Midwives, druggists, shoemakers, teachers, dressmakers, tailors and porters also suffered in large measure from the disease—that is, all classes of persons who come into close personal touch and contact with others, while occupations in which this does not occur to such an extent were almost exempt from the disease: artists, smiths, textile and other industries, stonecutters, brewers, etc. It was found that raw milk was probably responsible for 26.7 per cent. of the cases; contact with patients for nearly 17 per cent.; and with bacillus carriers for 9.5 per cent., while the drinking water was incriminated in 14.6 per cent. No source for infection could be discovered in 13 per cent. and 13 per cent. of the patients arrived in town already infected. The temperature seemed to influence the number of cases, the effect of the temperature being felt a month afterward, the maximum occurring in August, the minimum in February. The warmer weather causes more copious drinking and thus more opportunity for infection, while the germs proliferate more readily in the food and are distributed by sweaty hands, while the opportunities for bathing and swimming add to the chances for contagion, the traveling, the flies and dust, and the bathing in dubious water. Three-fourths of the patients were under 30, and a little over one-fourth were children. Among the prac-

tical measures suggested by these experiences and enforced at Strasburg are the necessity for trained nurses to care for typhoid patients, periodical instruction of school children in regard to the dangers of contaminated waters and the necessity for keeping water supplies free from pollution, press notices in regard to the dangers from raw milk, buttermilk and ice, and special regulations for bacillus carriers and their homes. Among the 28 bacillus carriers discovered were 4 children and 9 chronic carriers, with 8 carriers who lost their bacilli after a few months. The list included 2 housemaids, 2 bakers' wives, 1 tramp, 1 tailor and 1 capitalist. The fate of the bacillus carriers is dreary; one girl of 20 was dismissed from the factory on this account and from service as a chambermaid later, when the family learned her history. Her reputation as a carrier followed her to another town until bacteriologic tests gave negative findings, probably because she had substituted another's stool for examination. When dismissed from the factory she applied to the hospital to be freed from the bacilli and perseveringly submitted to a Naunyn gallstone course of treatment, with other measures, but all to no avail. After several experiences of this kind, Kayser refrained from informing the environment of the carrier's condition when he felt that circumstances allowed this, merely impressing the necessity for prophylactic measures on the carrier with minute directions, urging disinfection of the hands after defecation, the use of a pit privy, and warning against leaving urine or stools near streets, water courses and cultivated fields. In one instructive case the mother was a bacillus carrier, but for eleven years the family lived in hygienic conditions in town and there was no contagion. The family then moved into an unfinished house in the suburbs where the well was not protected against privy pollution, and two of the children developed typhoid and one died. In another case fruit and cake brought from another town evidently transmitted the contagion, as a bacillus carrier was found in the family of the donors. The man had typhoid first and the wife escaped for a year when typhoid developed after a contusion of the abdomen. Another bacillus carrier infected her son and daughter, and still disregarding the advice as to prophylactic measures, infected a married daughter who lived in the same street, and also the latter's child who died. On account of the danger from swimming in polluted waters, Kayser states that well-kept public baths and swimming tanks are important aids in the prophylaxis of typhoid.

Therapie der Gegenwart, Berlin

June, L, No. 6, pp. 265-312

112 *Gelatin in Therapeutics. O. Wandel.
113 Breathing Exercises in Asthma. (Atmungstherapie bei Asthma.) H. E. Knopf.
114 *Tardy Complications of Brain Abscess after Successful Operation. (Spätkomplikationen des Hirnabszesses nach erfolgreichen Operationen.) L. Jacobsohn.
115 Dosage of Alcohol, especially for Children. (Die Alkoholdosierung vom pharmakologisch-toxikologischen Standpunkt aus.) W. H. Becker.

112. **Gelatin in Therapeutics.**—Wandel remarks that gelatin has not disappointed the anticipations aroused when it was introduced into therapeutics as a hemostatic about twelve years ago. Its field of usefulness includes lung, stomach, bowel, uterus and other hemorrhages, but it is also valuable in constitutional affections of the blood entailing a hemorrhagic tendency. The technic at Quincke's clinic at Kiel aims to destroy anaerobic spores and protect the gelatin from external influences. This is accomplished by sterilizing a neutralized 10 per cent. solution of gelatin in an Erlenmeyer jar with a layer above of fluid paraffin to keep out oxygen. A long glass tube reaches to the floor of the jar, the upper end capped with a rubber tube and stop-cock. A larger short tube in the stopper, filled with cotton, allows the entrance of air. The whole is sterilized in a linen bag in steam for 40 minutes at 100 C. (212 F.). After cooling, it is kept in the incubator at 37 C. (98.5 F.), then sterilized again for 30 minutes as at first, and this is repeated for 15 minutes the following day. The gelatin thus sterilized is poured into vials containing 50 c.c., which are then fused. In a number of tests the gelatin was inoculated with garden soil and tetanus spores, but after this sterilization inoculation of guinea-pigs always gave negative results.

114. **Tardy Complications After Operative Treatment of Brain Abscesses.**—In the case described, alarming symptoms suddenly developed in a healthy woman of 30 suggesting epilepsy, eclampsia, uremia or serous meningitis, but the diagnosis by exclusion was finally that of irritation of the cortex by some sequel of a brain abscess which had been successfully operated on seventeen years before with no disturbance in the interim. The symptoms subsided in a week as suddenly as they came, and there has been no trouble since. Jacobsohn has found three similar cases on record of tardy complications, and he remarks that he knows of only four cases of brain operations followed for an interval of from eight to nineteen years.

Wiener klinische Wochenschrift, Vienna

June 3, XXII, No. 22, pp. 771-802

116 *Physical Development of Cretins under Thyroid Treatment. (Grössenwachstum bei Schilddrüsenbehandlung des endemischen Kretinismus.) A. von Kutschera.
117 *Ulcers in Palate in Typhoid. (Gaumengeschwüre bei Abdominaltyphus.) J. Novotny.
118 *Seroreaction in Blood of Eclamptics. (Vorkommen lezithinausflockender und komplementbindender Substanzen im Blute Eklamptischer.) E. Gross and E. Bunzel.
119 *Improved Technic for General Anesthesia. (Erfahrungen über das Narkotisieren.) R. Frank.
120 Treatment of Artificial Anus. O. von Frisch.

June 10, No. 23, pp. 803-838

121 Importance of Medical Clinic for General Medical Training. (Antrittsvorlesung.) A. von Strümpell.
122 Serum Reactions in Tuberculosis of Lungs and Skin. (Serologische Untersuchungen bei Tuberkulose der Lunge und der Haut.) E. Eitner and E. Stoerk.
123 Experimental Adrenalin Arterionecrosis. (Zur Frage der Adrenalin-Arterionekrose und deren experimenteller Beeinflussung.) F. Falk.
124 Optic Neuritis resulting from Uncontrollable Uterine Hemorrhages Cured by Vaginal Hysterectomy. R. Marek.
125 Operative Injury of Thoracic Duct. J. Goblet.

116. **Thyroid Treatment of Cretinism on Immense Scale.**—Since 1905, the Austrian government has been supplying thyroid tablets free of charge in seven endemic foci of cretinism with medical inspection twice a year. About 108,600 tablets were thus distributed in 1907, and 157,900 in 1908, the number of persons taking them was 1,011, and 608 were still under the thyroid treatment at the close of 1908. The results are tabulated here under various headings, special attention being paid to the increase in height as the most certain index of the benefit derived. Other findings are more liable to be influenced by subjective impressions. The report states that the results have been extremely satisfactory, confirming the efficacy of thyroid treatment as a prophylactic measure especially in endemic foci of cretinism. In 677 cases followed to date marked improvement was obtained in 48.6 per cent., and only 8.6 per cent. showed no benefit from the course. The most striking proof of the beneficial influence of thyroid treatment on the growth is the fact that in 377, that is, in 85.7 per cent. of all cases, the former dwarf cretin children grew to be taller than the normal standard for their age. As a rule, treatment was restricted to school children; the oldest cretin was 26 years old. Even after 20 a number of the cretins grew much taller and the other symptoms of cretinism became attenuated. This growth at this age is so surprising that it seems as if the growing power of the preceding years had been held in reserve, until suddenly released by the thyroid treatment, when it made all its force felt in a relatively short period. A large number of the more interesting cases are cited in detail. One cretin 20 years old grew 11 cm., but then refused to continue treatment as he outgrew his clothes too fast. He did not lose his milk teeth until after thyroid treatment was commenced, although those of the second dentition were in place.

117. **Ulceration in the Palate in Typhoid.**—Novotny states that in 102 cases of typhoid at Chvostek's clinic at Vienna during the last ten years larynx or palate complications, or both, have been observed in nearly 24 per cent., including 6 cases of severe ulceration in the palate. In one case besides the typhoid bacilli in the blood, stools and urine, paratyphoid B. bacilli were cultivated from the ulcer in the palate.

118. **Serum Reaction in the Blood of Eclamptics.**—Gross and Bunzel obtained a precipitating and complement-binding reaction in the blood of six women in eclampsia, while the tests

were invariably negative in normal pregnant and lying-in women.

119. **Auto-anesthetization.**—Frank ascribes great pathogenic importance to the mental excitement of the patient as the preparations are made for an operation. Anxiety, fear, disagreeable sensations induced by the odor of the chloroform and other emotions influence the patient's mind so that it is easy to understand that this intense psychic commotion may induce sudden heart failure before the effect of the anesthetic is felt. True chloroform syncope is peculiar to the beginning stage of the anesthesia before the consciousness is lost, and this is the most dangerous phase for arrest of the heart action. The asphyxia and other disturbances occurring later in the anesthesia are of an entirely different quality from those of this preliminary stage. In several years' experience he has found that all this fright and excitement can be avoided by the simple method of allowing the patient to anesthetize himself. He is given the mask and chloroform; no one holding or compelling him, the anesthetist merely encouraging and praising his efforts and urging him to count aloud. This method is particularly useful for children, as they are interested in the mask and are allowed to sit up and examine it and apply the chloroform themselves. The method is not needed for tranquil patients, but is much safer for the timid, the excited, the worried and for hard drinkers and children. It takes no more time than the usual technic; the anesthetist assumes his task as the patient loses consciousness.

Zentralblatt für Chirurgie, Leipsic

June 5, XXXVI, No. 23, pp. 825-856

126 Technic of Appendicectomy. Bertelsmann.
127 Portable Apparatus for Positive Pressure. (Portative Ueberdruckapparate; weiche Kammer; Injektorintubation.) E. Kuhn.

Zentralblatt für Gynäkologie, Leipsic

June 5, XXXIII, No. 23, pp. 801-832

128 Case of Galactorrhea following a Burn. (Fall von Galactorrhoea post combustionem, zugleich ein Beitrag zur Lehre des Antagonismus zwischen Brustdrüsenfunktion und Ovulation.) E. Vogt.
129 Permanent Cure in a Case of Chorioepithelioma with Metastases. A. Labhardt.
130 The Endometritis Question. J. Voigt.

June 12, No. 24, pp. 833-864

131 Shortening Round Ligaments by way of Inguinal Canal. (Die subfasciale Eröffnung des Inguinalkanals behufs Kürzung der Ligamenta rotunda.) A. Littauer.

Gazzetta degli Ospedali, e delle Cliniche, Milan

May 27, XXX, No. 63, pp. 665-672

132 Negative Results of Treatment of Angioma with Carbon Dioxid Snow. (Sulla pretesi efficacia della cura degli angiomi con l'acido carbonico congelato.) D. A. Lucio.

May 30, No. 64, pp. 673-688

133 Idiopathic Dilatation of the Colon. (La Malattia di Hirschsprung.) A. Rossi.

June 6, No. 67, pp. 705-720

134 *Reaction of the Urine Important Factor in Typhoid Bacteriuria. (Importanza della reazione dell'orina nella bacteruria tifica). R. Caretto.

June 8, No. 68, pp. 721-728

135 *"Xanthochroic Bodies" in Stained Urine. (Nuovo elemento colorabile del sedimento urinario.) E. U. Fittipaldi.

June 10, No. 69, pp. 729-736

136 *Is There a Syphilitic Diabetes? (La frequenza del diabete mellito tra i sifilitici.) G. Sarra.

134. **Reaction of the Urine Important Factor in Typhoid Bacteriuria.**—Caretta states that research at the Turin clinic with urine drawn directly from the kidneys and from the bladder demonstrated that when the urine gave an alkaline reaction the bacteria proliferated in it, while an acid urine seemed to keep their growth within certain narrow bounds. It further showed that stagnation in the bladder favored the multiplication of bacteria even when the urine from the kidneys was comparatively sterile. After the patients were given sodium bicarbonate, the growth of typhoid bacteria in the urine was seen to be much more profuse, although there is a remote possibility that the greater numbers of bacilli found in the bladder were the result of increased elimination by the kidneys under the influence of the alkali.

135. **"Xanthochroic Bodies" in Stained Urine.**—Fittipaldi calls attention to certain bodies in urine sediment which resemble tube casts, except for the different way in which they take the eosin and acetic acid stain.

136. **Is There a Syphilitic Diabetes?**—Sarra states that there are less than fifty cases on record in which the symptoms of diabetes were observed in a syphilitic, and yet in a number of them treatment directed against syphilis caused the subsidence of the diabetes, which had previously resisted antidiabetic measures. In such cases it must be admitted, he says, that the syphilis does not by itself produce the diabetes, but only that the location of some of its manifestations induces the syndrome of symptomatic diabetes.

Policlinico, Rome

June 6, XVI, No. 23, pp. 709-740

137 *"Karell Cure" in Treatment of Failing Compensation in Heart Diseases. (L'ipoalimentazione cura Karell in certi scompensi cardiaci.) G. Galli.
138 *Special Sign Characteristic of Paresthetic Meralgia. (Sopra uno speciale segno caratteristico di meralgia parestesica.) G. Impallomeni.
139 Stricture of the Urethra in Women. (Sui restringimenti uretrali nella donna.) F. Cuturi.

June, Medical Section, No. 6, pp. 241-283

140 Kala-azar in Sicily. U. Gabbi.
141 Experimental and Clinical Research on Strophanthin. (Sull'azione della strofantina.) C. A. Crispolti. Id. P. Ettore.
142 Metabolic Findings in Addison's Disease under Suprarenal Treatment. (Il ricambio materiale in un caso di morbo di Addison in rapporto al trattamento organiterapico.) C. Capezzuoli.

137. **Karell Cure in Treatment of Failing Cardiac Compensation.**—Galli has had very favorable experiences with this strict milk diet, described in THE JOURNAL, Sept. 5, 1908, page 877. It does no good to attempt it unless the physician is able to maintain it strictly according to rule, not allowing more than the 800 gm. (27 ounces) of milk during the day, taken in four portions. The temperature of the milk is immaterial, as also whether it is boiled or not. This diet must be kept up three to seven days, and it is remarkable, he says, to note the increased diuresis and the disappearance of edema. By the fourth day the diuresis may be six or seven times the amount of milk ingested, while the heart action is improved to correspond. Not only the edema disappears, but the waste products are eliminated to a remarkable extent. In one of his cases with complicating asthma, it vanished entirely after the third day of the Karell cure. The heart is relieved of part of its load by the elimination of such large amounts of fluids, if the heart and kidneys are still capable of functioning. Parenchymatous nephritis offers little chance for success with it; interstitial nephritis is its most grateful field. No drugs are needed except possibly with much cyanosis and dyspnea when a heart tonic may prove useful. The Karell cure is almost ideal, he adds, in obesity with failing compensation. The load of fat imposes extra work on the heart, which resumes normal functioning after the weight has been reduced. From 10 to 40 pounds may be lost in a few days under this Karell diet. The patient must remain in bed during the course. In chlorosis, with doughy tissues and flabby heart, this treatment may also give benefit.

138. **Sign of Paresthetic Meralgia.**—Impallomeni states that it is possible to differentiate this condition by the sharp pain induced when the reclining patient tries to flex, adduct and rotate outward the leg while the examining physician strives to turn it in the inverse direction.

Riforma Medica, Naples

June 7, XXV, No. 23, pp. 617-644

143 Reproduction of the Bruce Trypanosome. F. Valerio.
144 *Comparative Pressure in Brachial and Digital Arteries. (Sfigmomanometria comparata delle arterie omerale e digitale. Importanza clinica e diagnostica.) E. Pesci.

144. **Comparison of the Blood Pressure in the Brachial and Digital Arteries.**—Pesci has found that the difference between the blood pressure in the brachial and digital arteries may aid in the differentiation of certain affections. In arteriosclerosis the brachial pressure is constantly high, but with considerable fluctuation from day to day or even within the twenty-four hours. The digital pressure is constantly low, behaving constantly inversely to the brachial pressure. In atheroma the brachial pressure is normal or below, while the digital pressure is extremely low. In nephritis both brachial and digital pressures are constantly much higher than normal. In heart affections, a rapid and durable reduction in pressure is always

an unfavorable sign in regard to the heart action. In compensated mitral defects, the pressure in both arteries is below normal, while it is above normal when compensation is failing. In aortic defects, the pressure in both arteries is always much higher than normal. In myocarditis, the brachial pressure is high, the peripheral low. He gives the particulars of over two dozen cases of various cardiovascular and kidney affections with these comparative pressure findings. They are especially instructive when the pressure is determined before and after exercise fatiguing the heart. If the heart is functionally capable, the normal proportion between the two pressures is maintained; the lower the peripheral pressure in comparison, the weaker the myocardium.

Hospitalstidende, Copenhagen

April 14, LII, No. 15, pp. 441-472

145 Local Tuberculin Reactions. (Om Conjunctivalreaktion ved Tuberkulose.) F. Tobiesen. Id. (Kutane Tuberkulinreaktion.) C. Gøtzsche and H. Petersen.

April 28, No. 17, pp. 505-528

146 *Red Light and Darkness in Treatment of Smallpox. (Behandling af Kopper i rodt Lys og i Mørke.) C. H. Wurtzen.

May 5, No. 18, pp. 529-568

147 *Early Detection of Cutaneous Eruptions with Optic Means. (Omtidlig Paavisning af Hududslet ved optiske Hjælpemidler.) O. Jersild.

146. **Treatment of Smallpox Under Red Light and in Darkness.**—Wurtzen discusses the method of preventing pitting in smallpox by exclusion of light which was practiced years before Finsen called attention to the action of the chemical rays on the skin. Failure to obtain satisfactory results with the darkness and red light treatment is probably owing to the fact that the chemical rays are not completely excluded. Spectroscopic tests of various samples of red glass revealed a great difference between them in this respect, and showed also that red glass, perfect at first, deteriorated with age in respect to its permeability for the chemical rays. It is safest to darken the room entirely. The adjoining room and corridor should also be darkened or kept in red light so that the chemical rays can not enter when the door is opened. No daylight should be allowed to enter, not even for a moment for the purpose of inspecting better the eruption. Patients bear the red light or darkness differently, some objecting seriously to it, and a few complaining of a feeling of oppression and headache. The attendants find the frequent transition from outside daylight to the darkened room annoying, as the red light makes the retina very sensitive. This latter inconvenience, however, can be obviated by having the attendants wear colored glasses. The red light or darkness method has been applied since 1894 in the hospital with which Wurtzen is connected, and the results have always been satisfactory in the highest degree, so that the exclusion of the chemical rays is now the routine practice. The method can not be applied so well in the home, as it is difficult to ensure the exclusion of all the chemical rays, and the success of the method depends on the perfection with which this is done.

147. **Early Detection of Cutaneous Eruptions by Optic Means.**—Jersild reports extensive tests and clinical experience with optic means to detect eruptions invisible to the naked eye even in bright daylight. He has found that the mercury vapor lamp gives the most striking findings. This simple lamp requires very little electricity to work it and the red and orange rays are entirely absent from its light. Everything with a tinge of red shows bluish in this light, while parts with less blood show greenish. Incipient eruptions thus stand out much plainer than with other practicable optic means. He tabulates the findings with the mercury lamp, with the blue glass method and with Haan's "maculoscope." The observer with the latter inspects the skin through a thin layer of an ammonical solution of copper sulphate. The findings with this and the blue glass method are about the same, but with the mercury lamp they are much more instructive.

Hygiea, Stockholm

April, LXXI, No. 4, pp. 289-416

148 *Cutaneous Tuberculosis. (Om olika former af hudtuberkulos.) M. Möller.

149 *Phototherapy of Laryngeal Tuberculosis. (Om Solljusbehandlingen och öfriga fototerapeutiska metoder vid struptuberkulos.) J. Tillman.

150 Malaria Plasmodium and Relapses. (Fall af intermittens tertiana tillika med några anmärkningar beträffande malariaplasmodierna och recidiven.) M. Bruhn-Fähræus.

151—Esophagoscopy, Tracheoscopy and Bronchoscopy. W. Waller.

152 Intravesical Diverticula Formed by Ureters. (Om intravesikal divertikelbildning å uretererna.) G. Nilson.

153 Deformation of the Skull. (Om kraniala deformationer, särskildt om scafo- bathry- och clinocefali.) G. Backhan.

148. **Cutaneous Tuberculous Affections.**—Möller refers with pride to the stand taken by the Swedish government in 1903 that lupus patients without means are to be treated free of expense to them, provided the community or private individuals will assume the expense of their maintenance during the time they are taking treatment and of their journey to and from the place of treatment. No other country has made such provision for its lupus sufferers, except Denmark. Even in Germany, nothing has been done for them until quite recently. He is convinced that lupus is far more frequent than generally recognized; in Denmark a collective enquiry disclosed one case of lupus to every 2,000 inhabitants. The great trouble is that the lupus installed in the nose, for example, may be regarded as merely a tedious catarrhal affection, and no attention be paid to it. Even when it spreads below and around the nose it is supposed to be merely eczema, and the patient and his family seldom think of consulting a physician for it. Even if a physician is consulted, unless he bears the possibility of lupus constantly in mind, he is liable to overlook the true nature of the lesion. The lupus thus gets a firm foothold, and even the most energetic treatment then is liable to fail to ensure a permanent cure. The measures aimed to restrict the spread of pulmonary tuberculosis will also prove prophylactic against these cutaneous tuberculous lesions, but the main point in prophylaxis is for district and school medical inspectors, public vaccinators and specialists in children's diseases to keep a sharp watch for cases of incipient lupus so that the disease can be recognized early and arrested, testing for the tuberculin reaction if necessary for differentiation. It is a great misfortune for the patients that it commences so insidiously. Besides the special institutes for treatment of lupus, establishments should be provided where those taking treatment can be conveniently lodged and given a chance to support themselves in some way. Sweden has a model institute and lupus home of this kind, and he gives an illustration of each, with thirty other illustrations of typical cases of lupus, miliary ulcerative tuberculosis and scrofuloderma and various tuberculides, lichen scrofulosus, papulo-necrotic tubercle, nodular tuberculides, etc., before and after Finsen treatment.

149. **Sunlight in Laryngeal Tuberculosis.**—Tillman comments on the fact that nearly three years have passed since any further communications on this subject have issued from the Alland sanatorium, where Sorgo in 1904 claimed to be so successful with sunlight treatment of tuberculous laryngeal lesions. Tillman reviews what nearly two dozen other writers have published on heliotherapy and the few experiences with it in Sweden, and then reports the history of four patients between 21 and 35 in his own sanatorium at Osterasen. His conclusions are that heliotherapy is a simple and harmless method of treatment, effectual when the weather conditions are favorable, and free from the slightest untoward by-effects. The results may be a complete and permanent cure, even in case of extensive but not too diffuse infiltration. It certainly is an important adjuvant to general treatment, and he commends it warmly for further trials. One of his patients has passed through a pregnancy since without recurrence of the throat trouble; another is a public school teacher who has to lead a singing class several times a week, but has no further trouble from his throat since the sunlight treatment, although there is a tuberculous process in the left lung. The lungs were also affected in the third and fourth cases, but the laryngeal process was much improved during the course of sanatorium treatment. He has had no experience with the various other methods of phototherapy, but cites the judgments of others on them.

Norsk Magazin for Lægevidenskaben, Christiania

May, LXX, No. 5, pp. 417-488

154 *Opsonins and Other Antibodies. L. Hektoen.

155 Appendicitis at Christiania. 1888-1907. P. Bull.

156 *Three Cases Suggesting Abortive Neurofibromatosis. (Nævus mollis? Fibrolymphangioma cutis? von Recklinghausen's sygdom forme fruste?) K. Grøn.

157 *Importance of Michaeli's Square in Obstetrics. (Om Michaeli's firkant.) E. Rode.
158 Nature of Anaphylaxis. (Om overømfindtlighedens væsen og dens forhold til immuniteten.) S. Widerøe.

154. This article appeared in the *Journal of Infectious Diseases*, Chicago, February, 1909, and was abstracted in THE JOURNAL, March 20, 1909, page 998.

156. **Abortive Neurofibromatosis.**—In the three cases reported by Grøn, the puzzling cutaneous affections suggested soft nevus, fibrolymphangioma and abortive neurofibromatosis, and he does not know under which heading to classify them; two are illustrated.

157. **The "Venus Square."**—The four recesses or dimples at the lower part of the back, which form a square, have been long known to art, but Michaelis at Kiel early in the last century first called the attention of obstetricians to them as a means of determining conditions in the pelvis affecting childbirth. Study of works of art has shown that the ideal of beauty in this respect coincides exactly with the ideal conditions most favorable to an easy delivery. In children the distance between the upper and lower dimple, on the median line, is longer than between the two dimples on each side, and this proportion persists in the male, but in normal women the dimples form a perfect square. The distance between the opposite dimples in Norwegian women is about 4 inches (10 cm.), with the usual distance of 9 inches (25 cm.) between the anterior superior spinous processes of the ilium. The Celtic type of woman, with 22 cm. for this measure, has this Venus square of the same size: 10 cm., and sometimes even 11 cm. between the opposite corners of the square, and childbirth is easy with this type, notwithstanding the smaller interval between the ilia. In German Jewesses the Venus square measures only 9 by 9 cm., but due proportion is maintained, and delivery is easy likewise with this type. Aside from these types, any deviation from the regular perfect Venus square, measuring 10 by 10 cm., should be regarded with suspicion, Rode states, although the discovery of some ancestor belonging to these types may explain apparent discrepancies. In rachitic pelves the upper dimple is apt to be unduly low, and curvature of the spine is suggested when one of the side dimples is farther from the median line than its mate, in which case delivery with vertex presentation is easy or difficult according as the back of the head is in the larger or smaller half of the pelvis. The same woman may thus alternate easy and difficult childbirths from this cause. When the distance between the depressions is less than 9 cm., delivery without artificial aid is a rare exception. Rode's article was read as an address at a conference of midwives; he urges them never to neglect this important help for determining in advance the conditions for the impending childbirth, explaining the anatomic bases for the dimples and their arrangement, and emphasizing the point that the symmetrical regularity of the square is the main point.

Books Received

A PRACTICAL TREATISE ON RECTAL DISEASES: Their Diagnosis and Treatment by Ambulant Methods. By Jacob Dissinger Albright, M.D. Cloth. Pp. 455, with 32 plates and 39 illustrations. Price, $4. Philadelphia: Published by the Author, 3228 North Broad St., 1909.

DIE CHEMISCHE ENTWICKLUNGSERREGUNG DES TIERISCHEN EIES (KÜNSTLICHE PARTHENOGENESE). Von Jacques Loeb, Professor der Physiologie an der University of California in Berkeley. Paper. Mit 56 Textfiguren. Price, 9 marks. Berlin: Julius Springer, 1909.

TUBERCULOSIS: A Preventable and Curable Disease. By S. Adolphus Knopf, M.D., Professor of Phthisiotherapy at the New York Post-Graduate Medical School and Hospital. Cloth. Pp. 394, with illustrations. Price, $2. New York: Moffat, Yard & Co., 1909.

EIGHTH ANNUAL REPORT OF THE WORK OF THE CANCER LABORATORY OF THE NEW YORK STATE DEPARTMENT OF HEALTH. Conducted at the Gratwick Research Laboratory, University of Buffalo. 1907. Paper. Pp. 59.

FURTHER STUDIES ON THE PHENOMENON OF ANAPHYLAXIS. By M. J. Rosenau and John F. Anderson. Hygienic Laboratory. Bulletin No. 50. Paper. Pp. 52. Washington: Government Printing Office, 1909.

DISEASES OF THE BONES AND JOINTS. By Joel E. Goldthwait, M.D., Charles F. Painter, M.D., Robert B. Osgood, M.D. Cloth. Pp. 685, with illustrations. Price, $6. Boston: D. C. Heath & Co., 1909.

TECHNIQUE OF HYDROTHERAPY AND SWEDISH MASSAGE, As Employed at The Loma Linda Sanitarium, Loma Linda, Cal. Edition 2. Compiled by George Knapp Abbott, M.D. Paper. Pp. 40.

THE GREATEST GOOD OF MANKIND: PHYSICAL OR SPIRITUAL LIFE. By William Wenzlick, LL.B., M.D. Cloth. Pp. 374. Price, $1.50 net. Chicago: Published by the Author, 1206 Lawrence Ave.

REPORT OF THE DIRECTOR OF HEALTH AND CHARITIES FOR THE FISCAL YEAR 1907-1908, Office of Health, Charities and Correction. Bureau of Health, San Juan, P. R. Paper. Pp. 75.

THE UNIFICATION OF MEDICAL TEACHING IN THE STATE OF MINNESOTA. A Historical Evening, Dec. 8, 1908. University of Minnesota. Paper. Pp. 88.

THE ERRORS OF MIND-HEALING. By Reinhold Willman, M.D., St. Joseph, Mo. Cloth. Pp. 179. Price, $1. St. Joseph, Mo.: The Advocate Publishing Co.

New Patents

Recent Patents of Interest to Physicians

922841. Vehicle for hospital and other purposes. W. F. Bernstein, Philadelphia, Pa.
922845. Speculum. C. H. Borden, Hartford, Conn.
922859. Combined abdominal supporter and truss. J. F. Cruff, Cranston, R. I.
923118. Surgical device. C. E. Eckrode, Milltown, N. J.
922810. Irrigator having a constant temperature. E. de N. du Plantier, Paris, France.
922985. Endoscope. R. H. Wappler, New York, N. Y.
923751. Aparatus for mixing and administering gases. G. von Ach, Newark, N. J.
923752. Apparatus for holding and administering gases. G. von Ach, Newark, N. J.
923234. Vibrator. W. F. Acton, Norwalk, Conn.
923317. Fracture appartus for use with invalid beds. C. S. S. Barrows, Ipava, Ill.
923760. Diffusion apparatus. W. Bock, Prinzenthal, near Bromberg, Germany.
923625. Hernia-truss. G. Christodule, Paris, France.
923768. Manufacture of surgical ligatures. A. W. Clark, Conshohocken, Pa.
923776. Filtrative inhaler. S. Danielewicz, San Francisco, Cal.
923781. Prescription balance or scale. W. W. Dryden, Philadelphia, Pa.
923158. Massage device. J. J. Egan, New York, N. Y.
923352. Crutch. S. T. Glasford, Danvers, Ill.
923353. Thermoplastic compound of blood or egg proteid. B. B. Goldsmith, New York, N. Y.
923525. Hospital bed elevator and rest. J. M. Hopkins, Lexington, Ky.
923656. Surgical table. J. O. Hunter, Red Sulphur Springs, W. Va.
923566. Combination vibrator and timer. W. S. Newcomet, Philadelphia, Pa.
923798. Artificial leg. H. T. Odgers, Columbus, Ohio.
923444. Air-purifier. H. A. Robinson, Chicago, Ill.
923303. Dilator. J. W. Shults, Wichita, Kans.
923729. Invalid-bed. A. C. Taylor, Richmond, Va.
924596. Appliance for relief of headache. J. M. Blashfield, Kalamazoo, Mich.
924135. Sanitary mouthpiece for drinking glasses. F. E. Blenckstone, Oradell, N. J.
924433. Combined disinfector and lamp. B. F. Corwin, Brooklyn, N. Y.
923822. Atomizer. F. C. Dorment, Detroit, Mich.
924337. Catamenial sack. F. A. Fromann, Dallas, Texas.
923967. Producing camphene. C. Glaser, Baltimore, Md.
924230. Antifraud bottle. J. A. Horne, Oregon City, Oregon.
924468. Medicine cabinet. J. W. Hunt, Lunsford, Ark.
924075. Attachment for invalid-beds. J. Johnson, Fremont, Ohio.
924359. Hair-tonic. E. Kearney, New York, N. Y.
923862. Surgical head-holder. S. M. Langworthy, Cedar Rapids, Iowa.
924083. Invalid-bed. J. Mackey, Cape Horn, Wash.
924177. Invalid lifter, swing, and wheeled chair combined. C. F. Moore, Gillett, Pa.
924367. Suspensory bandage. O. M. Morris, Spring Lake Beach, N. J.
924494. Preparing pure lactic acid. H. Noerdlinger, A. Caroselli and L. Berg, Florsheim-on-the-Main, Germany.
923999. Hair tonic. A. P. Riggs, Seattle, Wash.
924383. Douche or bed pan. I. Schikorra, Philadelphia, Pa.
924294. Forming sacks for suspensory bandages. J. K. Toles, Chicago, Ill.
40046. Design, Fibrous sheet material for surgical dressings. W. M. Stone, New York, N. Y.
924875. Artificial paw. H. Baehr and A. Sommerfeld, New York, N. Y.
924644. Catamenial appliance. D. S. Daudt, North Plainfield, N. J.
925121. Combination drawers and suspensory. E. A. Melze, Chicago, Ill.
925380. Mouth speculum. G. J. Reed, Peoria, Ill.
925059. Combined portable folding cot and tent. J. A. Walker, Los Angeles, Cal.
924870. Shirt suspensory. W. S. Wootton, Roanoke, Va.
926011. Nipple. T. W. Miller, Akron, Ohio.
925645. Truss. C. Molz, Kaiserslautern, Germany.
925590. Producing a medicament. W. D. Neel, Chicago, Ill.
925592. Splint holding frame. W. H. Parker, Passaic, N. J.
925718. Syringe nozzle. E. T. Pearl, Passaic, N. J.
926075. Capsule for holding compressed or liquefied gas. H. V. R. Reed, London, and H. Campbell, Edmonton, England.
925947. Remedy for eczema. W. N. Ringer, Palacios, Texas.
925658. Preparation of chloroform in solid condition. C. L. Schleich, Berlin, Germany.
926033. Invalid-bed. T. Taylor, Parkersburg, W. Va., and W. M. Stuart, Mount Oliver Borough, Pa.
926042. Sanitary building. H. Zeitschner, Munchen-Glabach, Germany